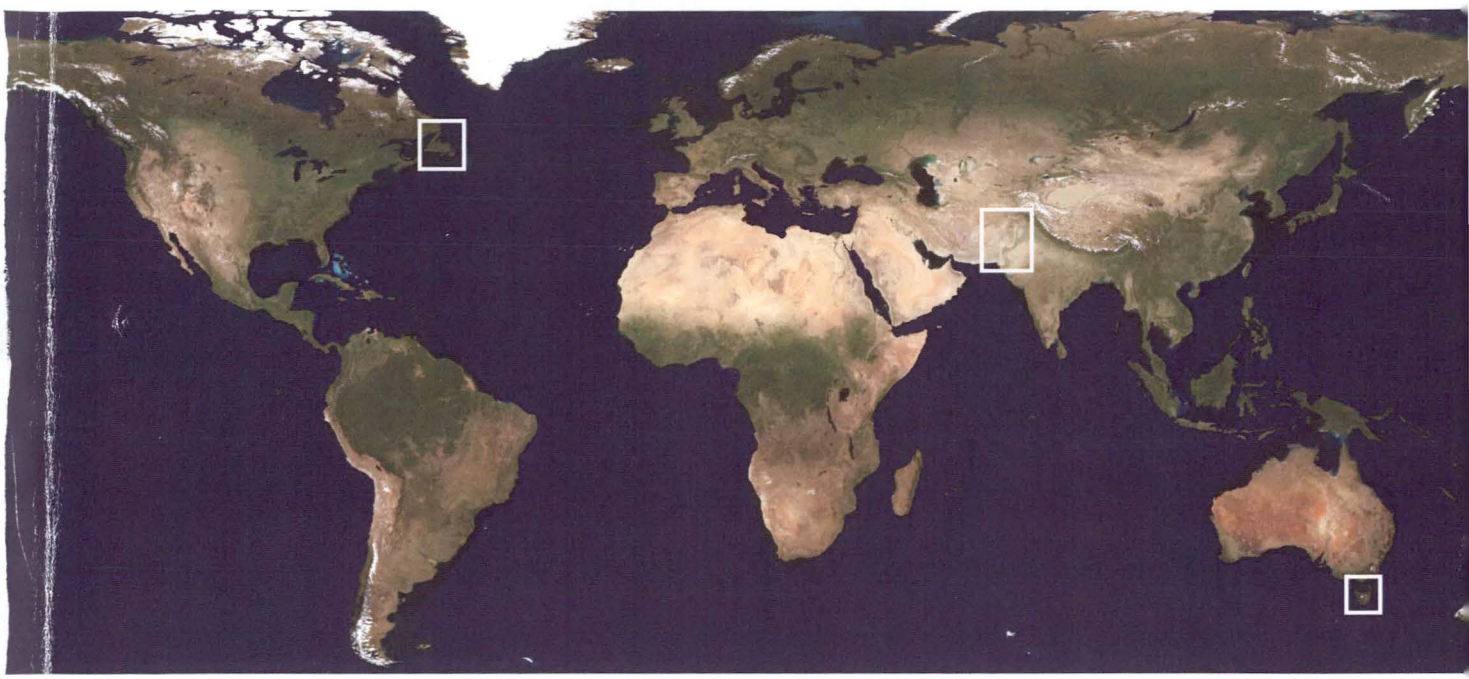
EXPLORING THE CONNECTIONS BETWEEN INEQUALITY, COMMUNITY DYSFUNCTION AND SUSTAINABILITY

FISHERY CASE STUDIES FROM NEWFOUNDLAND, TASMANIA AND PAKISTAN



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STATEMENT OF AUTHENTICITY

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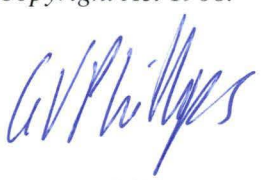

Gregory Phillips

1 June 2007

ABSTRACT

Analysis of political economy within primary sectors such as fisheries and agriculture provides insights that can be applied more broadly. Since the 1990s there has been a growing recognition that the world's fisheries are in a state of crisis and that this is symptomatic of a more general, global sustainability crisis. In fisheries, worldwide, excessive capacity is harvesting fish at unsustainable levels. New technologies for communication and the processing, transport and storage of fish is contributing to the development of expanding marketing opportunities. These generate economic incentives that motivate ever more intensive fishing effort on declining stocks of increasingly valuable fish. In addition, environmental damage to marine and freshwater ecosystems undermines their capacity to sustain healthy, productive fisheries. Fishing communities are also experiencing stress associated with worldwide trends in fisheries management. These trends can be linked to the global ascendancy of neoliberalism as a political culture, and a feature of fisheries debate over the past two decades has been the contest between advocates of market mechanisms, private property rights and economic efficiency, versus defenders of social values. Both sides have sought to incorporate the concept of sustainability into their arguments. The aim of this thesis is to examine the relationship of these social and political-economic trends with sustainability in fisheries, and to consider the implications for the sustainability of societies more generally.

The thesis is based on case studies featuring Newfoundland, Tasmania and Pakistan, in which fisheries issues are examined within the context of broader cultural and structural characteristics. Comparisons and cross references are made between the case studies, and they are also linked by the development of an ongoing discussion of themes relevant to the economic versus social fishery debate. Social inequality emerges as a key issue in the interaction of social, political, economic and environmental aspects of sustainability.

The first case study focuses on Newfoundland, where the collapse of the cod fishery in the early 1990s came to serve as symbolic of the worldwide problem. Historically entrenched social dualism, or inequality, was found to be a significant factor in various forms of sustainability dysfunction in the social and material structure of Newfoundland's fisheries, and of Newfoundland society more generally. It was implicated in various of the interrelated, underlying "causes" of the fishery's failure including the institutional corruption of the scientific processes that were the basis of fishery management.

Tasmania, the site of the second case study, shares many points of comparison with Newfoundland, including the persistence of characteristics that are linked to a history of institutionally entrenched inequality. In Tasmania these are a legacy of European settlement through the establishment of a convict colony at the beginning of the nineteenth century. The Tasmanian case study examines how these characteristics have been perpetuated by a political and resource management culture that is contemptuous of transparency and democratic processes and which tends to serve established vested interests and foster rent-seeking activity. The influence of this political culture on resource management and environmental protection in Tasmania raises questions, in light of the Newfoundland experience, of Tasmania's prospects for sustainability.

The third case study focuses on Pakistan. Social dualism, identified as a key factor in the Tasmania and Newfoundland case studies, is a pronounced, arguably defining characteristic of Pakistani society. Pakistan is afflicted by poverty, corruption, dysfunctional institutions and an economy distorted by structural characteristics associated with unproductive rent-seeking activities. Military dictatorship, sectarian violence, a constant threat of war with its neighbours and the rise of militant religious fundamentalism are also features of Pakistan's seemingly perpetual state of crisis. A fishery case study demonstrates the apparent compatibility and easy integration of market mechanisms and private property rights within Pakistan's traditional feudal system, but shows how, ultimately, this does not support institutional and social structures conducive to sustainability. The analysis is extended to establish a link between the social and economic insecurity of people displaced from access to resources, whether this is a consequence of political aspects of distribution or results from environmental collapse, and the rise of fundamentalisms, which, through their suppression of communal rationality, become causes as well as symptoms of sustainability dysfunction. In conclusion, the study supports arguments that the transformation of fisheries, and by extension, of societies more generally in accordance with prevailing neoliberal trends undermines the social cohesion and institutional integrity required for sustainability.

ACKNOWLEDGEMENTS

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1. Introduction

1.1 Problem Statement: The Global Fishery Crisis

Since the 1990s there has been a widespread recognition that the world's fisheries are in crisis. Excess capacity in the global fleet, exacerbated by technological advances, is harvesting fish at unsustainable levels. New communications technologies and advances in fish processing, transport and storage contribute to the development of expanding marketing opportunities. These generate economic incentives that motivate ever more intensive fishing effort on declining stocks of increasingly valuable fish. In addition to overfishing, pollution and other forms of environmental damage undermine the capacity of marine and freshwater ecosystems to sustain healthy, productive fisheries. These ecological aspects of the global fisheries crisis are often matched by interlinked social, political and economic dimensions. Many fishery dependent communities experience division and stress related to underlying issues of resource allocation, and exclusion, that are linked to modernisation and policy trends in fisheries management. The global ascendancy of neoliberalism is a major influence of these trends, and a feature of the fisheries debate over the past decade has been the contest between advocates of market mechanisms, private property rights and economic efficiency, versus defenders of social and community values, cultural traditions and equity. Both sides in the debate seek to legitimise their arguments with claims that the management approaches they oppose, often for reasons of ideology or vested interest, are inherently unsustainable.

Understanding the broader political and social forces at work in society provides insights that help to explain policy trends associated with the fisheries crisis. The converse is also true and an important reason for studying political economy in relatively simple, primary production systems such as fisheries and agriculture is that they often demonstrate how such processes work, on a more extensive scale, to affect society more broadly (Mansfield 2004). Examining trends in global fisheries with regard to social, political, economic and environmental aspects of sustainability, may, therefore, provide insights that have a wider relevance. It is the aim of this thesis to study these global fishery trends through examination of three geographically located case studies, from Newfoundland, Tasmania and Pakistan, and to explore the broader implications for the sustainability of fisheries, and of human societies more generally.

1.2 Research Approach

Authorities on research design and thesis writing emphasise the advisability of identifying a central, clearly defined research question, or aim, to serve as a helpful tool in focusing the study (Creswell 1998: 99; Evans and Gruba 2002: 60). They recognise that it is often difficult to identify this central question, especially in qualitative research. Creswell (1998: 101) acknowledges there may be a need for "topical subquestions" where the central question provides inadequate information to describe the study. Broad and open-ended aims are common for exploratory research undertaken with a systemic analytical perspective (as in this thesis). As such research progresses, new questions often arise. There is a constant opportunity to follow tangents or patterns that emerge as greater knowledge of the subject matter develops in the course of the study[1]. There is also considerable latitude for interpretive flexibility, and individual creativity in composing arguments and this accounts, in part, for the criticism often levelled at qualitative research; that it is subjective, constructed and easily biased (Denzin and Lincoln 2000: 7). Ethnographic research (from which modern qualitative methods are largely derived) has a recognised potential for bias (Baszanger and Dodier 2004: 9). Yet, it is also true that systemic, qualitative analysis is the basis of many of the foundations of the rational, Western philosophical tradition; a tradition that does not shrink from presuming to delve into realms where subjective values and unquantifiable concepts, matters as elusive of measurement as "wisdom", for example, are addressed without discomfort. It is a tradition that generates ideas that remain open to ongoing analysis and challenge, and that, thereby, retain a timeless relevance as explorations and interpretations of the human condition.

Various qualitative research methods were used in combination in this thesis. These include the use of case studies, textual analysis and elements of traditional ethnographic research. A flexible approach, unrestricted by prescriptive methodological procedure, permitted the easy

[1] As an example (relevant to the Newfoundland case study in chapter 3), one may begin with the question: what was the cause of a fishery collapse? After analysing alternatives, the collapse may be attributed to overfishing. This, however, immediately gives rise to another question: what was the cause of overfishing? After analysing alternatives, overfishing may be attributed to overcapacity. But this gives rise to the question: what was the cause of overcapacity? Bad fishery science might be blamed, but this gives rise to the question: what was the cause of bad fishery science? Socio-political dysfunction might be identified as the underlying cause, but this, again, gives rise to another question: what was the cause of socio-political dysfunction? And so on, and the situation is not even as straightforward as this description may imply. The solutions to each question are often multiple, complex and interconnected. This sort of research, or philosophical analysis, can only be undertaken with a systemic perspective that recognises that everything is connected to everything and acknowledges the importance of the interconnections.

integration of this material in the overall analysis with material drawn from a range of disciplines including fisheries biology, history, political theory and economics. It is common for qualitative researchers to "deploy a wide range of interconnected interpretive practices" in order "to get a better understanding of the subject matter at hand" (Denzin and Lincoln 2000: 3-4). The term *bricoluer* describes the researcher as a tinkerer who borrows from different disciplines. Denzin and Lincoln (2000: 6) note: "The researcher-as-bricoluer-theorist works between and within competing and overlapping perspectives and paradigms" and this aptly describes the research approach adopted here. Denzin and Lincoln (2000: 2-3) also identify seven "historical moments" in qualitative research that "simultaneously operate in the present". The seventh moment, "the future", is a post 2000 development and is "concerned with moral discourse, with the development of sacred textualities. The seventh moment asks that the social sciences and the humanities become sites for critical conversations about democracy, race, gender, class, nation-state, globalisation, freedom and community". Some of these issues are key themes in this study, which is located comfortably within this contemporary "seventh moment" in qualitative research.

The thesis is structured around three major case studies, featuring Newfoundland, Tasmania and Pakistan. The case-study approach is commonly used, but not limited to qualitative research methods (Stake 2000: 435). Case study research is essentially a process of building theory, which enables generalisations to be drawn, that can be tested or applied more widely (Evans and Gruba 2002: 92). Thus, it is a useful approach for comparative studies. It also lends itself to exploratory research. Evans and Gruba (2002: 92) also emphasise that a different approach is taken, if one is "investigating a phenomenon in its own right or as a case study from which you might later draw some generalisations". In this thesis there is not always a clear distinction. There are elements of both of these approaches. The case studies are investigated in their own right, some original insights are developed, but important themes and concepts serve as focal points that provide a continuity in the discussion as it progresses through chapter 2 and the case study chapters.

Newfoundland, due to the much-studied collapse of the cod fisheries in the early 1990s, is a key location to investigate the causes and processes associated with unsustainable fisheries management. Tasmania is well suited to comparison with Newfoundland, sharing many geographical, cultural, and economic features. It provides the opportunity to validate, by triangulation[2], theories and conclusions that emerge from the Newfoundland case study.

[2] Stake (2000: 443) observes: "triangulation has been generally considered a process of using multiple perceptions to clarify meaning", and Flick (1998: 230) and Denzin and Lincoln (2000: 5) suggest that triangulation serves not so much as a tool of validation as an alternative to it.

Pakistan, which shares some features with Newfoundland and Tasmania, but differs in other ways, represents a society immersed in a seemingly perpetual state of social, political, economic and environmental crisis. By exploring the role of key factors found to be linked to unsustainability in Newfoundland and Tasmania, within Pakistan's more comprehensive state of crisis, it provides the opportunity for further validation as well as providing insight into the social, political, economic and environmental conditions within a society in which dysfunctional features have become exaggerated and deeply entrenched. Within each case study, fisheries management issues are discussed from an analytical perspective that regards resource management patterns as reflecting the political and cultural structures and trends that are characteristic of each place.

The Newfoundland case study is based primarily on textual analysis, guided by some ethnographic influence. In the course of my research I made two visits to Newfoundland (2001 and 2002) and I also visited Nova Scotia. These visits provided the opportunity to meet and exchange ideas with researchers at St Mary's and Dalhousie Universities in Halifax (Nova Scotia), St. Francis Xavier University at Antigonish (Nova Scotia), and at Memorial University of Newfoundland in St John's. These interactions also provided helpful direction towards relevant literature. The second visit to St John's included a two-month period of study as a visiting researcher at the Public Policy Research Center at Memorial University. Much of the literature referred to in the Newfoundland case study was accessed during this period. I also visited a number of coastal settlements and gained an appreciation of the enormous significance of the cod fisheries in the development of Newfoundland's history and culture and this provided insights that influenced and enriched the analysis.

The Tasmanian case study is based on a combination of textual analysis supported by several resource management case studies[3]. Literature from the disciplines of history and political theory provides background information explaining the origins and persistence, in Tasmania, of particular cultural and structural characteristics. This provides a context in which three discrete resource management case studies are analysed. These concern Tasmanian forestry management based on textual (and documentary film) analysis, and two fisheries related case studies that examine the Tasmanian rock lobster fishery, and the regulation of pollution and coastal salmon farming. The rock lobster fishery case study examines historical developments and trends in the management of the fishery including the establishment of a management system based on individual transferable quota (ITQ). This research is based on

[3] These minor case studies are internal to, and not to be confused with, the major chapter case studies featuring Newfoundland, Tasmania and Pakistan.

analysis and interpretation of policy developments in the management of a fishery and is augmented by textual analysis[4]. The material for the case study dealing with salmonid aquaculture was developed from a project in which I was professionally involved during the period of my PhD candidature. This was an "open", community-focused resource management project involving representatives from federal, state and local government, several industry stakeholder groups and from the local community. The manner in which material for this case study is treated in the thesis reflects a combination of ethnographic and participatory research supported by textual analysis of documentation relating to the project.

The Pakistan case study includes background information based on textual research, extensive informal interviews with key informants, and personal observations made during travel to the region. This is combined with a fishery case study from Rawal Lake near Islamabad that was developed using a traditional, almost stereotypical, ethnographic social science approach. This fishery case study was researched during a one-month visit to Pakistan in April/May 2001. During this visit I also travelled widely in the North West Frontier Province and Punjab Province between Islamabad and Peshawar, and in the northern regions of Mardan, the upper Swat River Valley and the Kagan Valley[5]. This travel provided the opportunity to observe, first hand, conditions in Pakistan to support information obtained from literature sources and from numerous informal discussions. I was greatly assisted in this field research by a friend and colleague, a Pakistani national who had recently completed a Masters degree at the University of Tasmania, and who provided essential translation skills, background information and logistical support, and who also facilitated interviews with government officials, academics and other sources.

Fieldwork for the Newfoundland and Pakistan chapters required flexibility to respond to unforeseen problems and to take advantage of unforeseen opportunities. For example, the deterioration of security in Pakistan following September 2001 made a follow up visit in mid-2002 inadvisable and the study, therefore, was limited to working with material gathered during the initial field exercise in 2001. Nevertheless, this was adequate to develop an important section of the thesis. Conversely, unforeseen sources of travel assistance became available in 2002 and facilitated the study visit to Newfoundland in the northern hemisphere summer and fall of that year. A flexible research approach allowed these and other changes to be accommodated with some shifts of emphasis in the degree of attention

[4] I was the principal author of a paper (Phillips, Kriwoken and Hay 2002) on the topic that was published during the course of my candidature, and some of the material from this paper is included in the thesis.

[5] This region was severely affected by the earthquakes that occurred in October 2005.

devoted to the different chapters. While, clearly, the final proportions of different sections of the thesis were influenced to some extent by uncontrollable factors such as these, they did not unduly compromise its general shape and direction.

1.3 Thesis Structure and Overview of the Study

The thesis has six chapters. Following this introduction, **chapter 2** (approximately 21 pages) provides an overview of the global fisheries crisis and of recent trends in fisheries management. Key concepts relating to the "social fishery" versus "economic fishery" debate are explained in the context of excess capacity and the realisation of resource limits in global fisheries. Competing rationales for sustainability inherent to the two paradigms are explored. The economic fisheries management model, with its theoretical grounding in the "tragedy of the commons" thesis and emphasis on enclosure and resource privatisation is explained, and its emergence as the orthodox management approach over the past two decades is discussed in relation to the corresponding, global ascendance of neoliberalism as a political and resource management culture. The alternate, or dissenting, social fishery paradigm is also examined. It emphasises the importance of equity and social cohesion as preconditions for sustainable resource communities and this is the basis of the sustainable communities concept. Chapter 2 introduces key concepts and themes that are explored further in relation to specific situations in the case study chapters that follow.

The Newfoundland case study is the subject of **chapter 3** (approximately 109 pages) and examines the causes of the collapse of the cod fishery in the early 1990s. The analysis is comprehensive and systemic in its perspective and explores the way that elements of Newfoundland's history, geography and the political economy of the cod fishery combined to shape persistent cultural and structural characteristics of Newfoundland society, which, in turn, influenced the conduct of the fishery. The role of inequality, or social dualism, as a factor linked to the fishery collapse was a particular issue of focus.

The Tasmania case study is the subject of **chapter 4** (approximately 75 pages). Some historical background and a number of geographic, cultural, political and economic features common to both Tasmania and Newfoundland are established, providing the basis for comparative analysis and the extension of generalities from one case to another. Tasmania was settled at the beginning of the nineteenth century with the establishment of a convict colony, and the persistence of social, economic and political inequality, and the influence of this on resource management in Tasmania is discussed. Implications for sustainability are considered and also related to the conclusions from the Newfoundland case study.

Chapter 5 focuses on Pakistan (approximately 49 pages). The pronounced and institutionalised inequality that characterises Pakistani society is described and linked to Pakistan's seemingly perpetual state of social, political, economic and environmental crisis – conditions that sustain military dictatorship and give rise to fundamentalism. A fisheries case study illustrates the ready integration of property-rights-based resource management regimes with Pakistan's entrenched feudalism, and examines how this undermines the development of social structures conducive to sustainability. Socially and environmentally unsustainable resource management practices are linked with the rise of fundamentalism in the region and the discussion is extended to further examine the connection, raised in chapter 2, linking the global trend towards resource management practices that promote rent-seeking and inequality, and the rise, world-wide, of various forms of fundamentalism.

Chapter 6 (approximately 18 pages) provides a summary and overview of the entire study and draws together conclusions from the case study chapters.

2. The Global Fisheries Crisis: Background and Key Issues

2.1 Introduction

This chapter introduces the global fisheries crisis that emerged in the 1990s. It describes issues and trends in fisheries management, and the particular emphasis now given to concerns about sustainability. It also provides a brief, contextual introduction linking contemporary trends in fisheries management to the ascendance of neoliberal economic ideology that has dominated the global political climate over the past twenty-five years. The simplistic market focus of neoliberal economic policies have continued to arouse challenges based on concerns over their social and environmental implications. These have escalated in the early years of the twenty-first century with a growing awareness of an intensifying global, social and political crisis that is inextricably linked to resource and environmental issues. Consequently, more holistic approaches to the challenges of environmental, social, political and economic sustainability are gaining greater salience. Holistic or systemic approaches emphasise that "everything is connected to everything". It is the nature of the interactions of social, political, economic and ecological factors that is a key area of focus. I have explored these interactions more extensively elsewhere with respect to fisheries sustainability (Phillips 1998), and summarise some core points here. The purpose of the chapter, therefore, is to provide a brief overview of key issues and themes in the fisheries debate of the past two decades, and to show how this is linked to the sustainability debate more generally. This establishes a perspective within which the case studies in the following chapters will be examined.

2.2 Resource Limits

It became apparent in the 1990s that the total harvest from global fisheries had approached the maximum level of production allowed by ecological limits (Garcia and Newton 1994; Buckworth 1998). Data compiled by the Food and Agriculture Division of the United Nations indicated that the annual catch from world fisheries, which had been increasing consistently since World War II, had levelled off at somewhere around 90-100 million tonnes in spite of continuing growth in fleet capacity and fishing effort (FAO 1995a). It was estimated that 70 per cent of the world's marine stocks were fully exploited, overexploited or recovering from overexploitation (Mace 1997: 3). The collapse of some major fisheries, such as the Canadian Northern cod fishery, heightened concerns, and, at the same time, raised doubts about the ability of modern, scientific fisheries management to manage

fisheries sustainably. These factors all contributed to a sense of "global fisheries crisis" in the 1990s[6].

The relative ease with which industrial fishing capacity can be relocated around the world, and the increased globalisation of world economies, including trade and investment in fisheries, adds relevance to this global perspective on the fisheries problem, as does the global ascendance of a neoliberal political culture which has, in the past two or three decades, had a profound effect in fisheries as well as in other areas of social and economic policy. But in some respects the global fisheries crisis of the 1990s contained little that was new. In some ways it was simply an expansion of perpetual, recurrent fisheries issues to a global perspective. Nevertheless, a sense of finite limits inherent to the global dimension has significant implications.

Overcapacity was recognised as an underlying cause of overfishing at the United Nations International Overfishing Conference held in London as early as 1946 (Garcia and Newton 1994). McVay (1966) warned that global overfishing and a pattern of sequential "mining" of stocks must inevitably lead to resource collapse. From World War II until the 1990s, fisheries have followed an expansionist pattern and global fleet capacity increased four-fold from 1965 to 1995 (Mace 1997: 4). As some stocks were overexploited new fishing grounds, or species, or more powerful fishing technologies were discovered allowing continued growth in the total harvest. But in the 1990s it became clear that this could not continue. The realisation of ecological limits, and the curtailment of opportunities for continued expansion had implications for capital growth, and initiated a renewed concern about sustainability and an intensification of competition over what were now recognised as limited, scarce and increasingly valuable fish resources. Intensified competition between

[6] "The Sceptical Environmentalist", Bjorn Lomborg (2001: 106-108) dismisses the global crisis in fisheries as insignificant (fish accounting for only one per cent of calories in the human diet) and easily solved by establishing "ownership" over wild fisheries. Expanded aquaculture production, Lomborg argues, is increasing the global supply of fish protein. Aquaculture is widely touted as the solution to the fishery crisis and the means to expand production, but it is also problematic and associated with serious environmental and social impacts (Aiken and Sinclair 1995). Much of the expansion of global aquaculture production in recent decades has been with salmonid and shrimp culture. These species are produced with diets based largely on fishmeal and 5-10 kg of fish are generally required to make the feed for each kilogram of shrimp or salmon produced (O'Riordan 1996). This sort of aquaculture may not, therefore, contribute to expanding the supply of fish available for human consumption (Holmes 1996). Often small pelagic fish are targeted for fishmeal production and this raises ecological concerns about "fishing down the food web" (Pauly *et al.* 1998). There are also serious pollution problems associated with aquaculture and some of these will be discussed in chapter 4, the Tasmanian case study.

capital and labour, traditionally substitutable inputs in fishing capacity, is one area in which this has been apparent.

The issues involved in this global fishery crisis were historically familiar in many local fisheries. At a local level, a level that is generally more relevant to fishers and their communities, and to resource managers, than is the global perspective, the inherent ecological instability of fishery systems (Wilson *et al.* 1994; Sharp 1995), the constant evolution of increasingly powerful fishing technology, and the "open-access" conditions of many fisheries has meant that resource crisis, competition, and concern about sustainability has been a common experience throughout the human history of fishing. This historical perspective is nicely illustrated by a petition (cited in Dyson [1977: 37]) from traditional fishers of the Thames Estuary in 1376, requesting that Edward III prohibit the use of a new and powerful fishing technology that was damaging to their interests[7]. This example of a fisheries conflict from 600 years ago is remarkably similar to some contemporary ones and is worth repeating for the issues that it raises as much as for its literary qualities.

> *The great and long iron of the wondyrchoun runs so heavily and hardly over the ground when fishing that it destroys the flowers of the land below the water, and also the spat of oysters, mussels and other fish upon which the great fish are accustomed to be fed and nourished. By which instrument in many places the fishermen take such quantity of small fish that they know not what to do with them; and they feed and fat their pigs with them, to the great damage of the Commons of the Realm and the destruction of the fisheries.*

At the heart of the conflict is competition between the interests of traditional, small-scale fishers and those equipped with more powerful, "efficient", and capital-intensive technology. The political nature of the dispute is clearly evident, and the arguments that the petitioners invoke in seeking intervention on their behalf refer to the broader public interest (implied in reference to the "Commons of the Realm") and to values that, today, would be associated with concerns over the "sustainability" of fish stocks, habitats and ecosystems[8]. Similar arguments raised by small-scale fishers against industrial, bottom trawl fishing have been a common issue in fisheries management throughout the twentieth century, particularly as motorised propulsion became progressively more "efficient" enabling ever larger, more powerful, and potentially destructive nets to be dragged (for example, Dyson [1977: 270]; Kurlansky [1999: 139-141]). But these disputes do not only involve trawl gears. Almost

[7] The *wondyrchoun* was a beam trawl net about three metres across that was dragged along the seabed by a sail powered vessel.

[8] Dyson (1977: 38) notes that the fishers were unsuccessful with their petition, the interests of capital and "efficiency" predominated.

any different technology, especially if it is capital intensive and more efficient in terms of fish harvested per fisher, can incite opposition from users of "traditional" methods[9].

Steinbeck[10] (1960: 294-298) provides another historical case of a fishery conflict in an account of industrial trawling by Japanese vessels in Mexican waters in 1939. He observed a fleet of six trawlers, each 150-170 feet long, accompanied by a mother ship and other vessels, and noted: "They cruised slowly along in echelon with overlapping dredges, literally scraping the bottom clean. Any animal which escaped must have been very fast indeed, for not even the sharks got away" (1960: 295). Only shrimps were retained while many tons of other species were discarded, dead, into the sea. Steinbeck questions why the Mexican government should have permitted such a wasteful destruction of valuable food resources to the detriment of the local, small-scale fishing communities that depended upon them. He commented:

> *We liked the people on this boat very much. They were good men, but they were caught in a large destructive machine, good men doing a bad thing. With their many and large boats, with their industry and efficiency, but most of all with their intense energy, these Japanese will obviously soon clean out the shrimps of the region. And it is not true that a species thus attacked comes back. The disturbed balance often gives a new species ascendancy and destroys forever the old relationship (1960: 297).*

And further:

> *The Mexican official and the Japanese captain were both good men, but by their association in a project directed honestly or dishonestly by forces behind and above them, they were committing a true crime against nature and against the immediate welfare of Mexico and the eventual welfare of the whole human species (1960: 298).*

Steinbeck's observations reflect concerns similar to those expressed by the Thames fishers in the fourteenth century. The conflict between the interests of small-scale, local fishers and larger, more powerful, capital based, industrial fishing operations is a central issue. The environmental damage and resource waste associated with powerful, industrial fishing methods, and the damage this implies for a broader public interest, even to "the whole

9 In chapter 3, for example, Cadigan's (1999b) discussion of the opposition by traditional hand-line fishers to the introduction of cod traps and long-lines in the Newfoundland coastal fisheries in the mid-1800s will be examined.

10 Steinbeck, novelist and winner of a Nobel Prize in literature incorporated a strong element of political economy in his work. He had studied marine biology at Stanford University and *The Log From The Sea of Cortez* is an account of a marine biological survey expedition to the Gulf of California in 1939. The book is a philosophical exploration interlinking ecology, politics, economics and the human condition.

human species", is also raised. Notably, Steinbeck speculates that greed and political corruption are behind the forces that permit such abuse of a broader common interest to occur, and he also raises issues of national interest and international involvement. Some of these issues are particularly relevant to the Newfoundland case study in chapter 3 and these two historical examples of fisheries crisis demonstrate that fishery problems can be more complex than simply being due to "too many boats chasing too few fish".

Mace, discussing the global fisheries crisis of the 1990s (and referring to statistics compiled from FAO and other sources), notes that of the total estimated marine catch of approximately 100 million tons, only about half was used for direct human consumption, a quarter was used in the manufacture of stockfeeds (including those used in aquaculture) and another quarter was discarded as bycatch. Shrimp fisheries are the most wasteful in terms of discarded bycatch "with discard ratios of up to 15 times the landed catch" (Mace 1997: 3).

Mace (1997: 4) notes, overcapacity is the most important problem in marine fisheries. Overcapacity means there are "either excessive amounts of capital in the form of fishing vessels and gear (i.e. overcapitalisation), or excessive numbers of participants, or both". In resource limited fisheries, the ability of capital equipment to substitute for labour and compete with fishing people for fish stocks is the cause of many fishery conflicts, especially where industrial operations share access to a resource with artisanal or small-scale fishing methods. McCully (1991: 77) examined this issue from a global fisheries perspective and was critical of "modernisation" policies (of the FAO) that led to overfishing, to increased income disparities in fishing communities and to the "marginalisation and impoverishment of traditional fishing communities around the world". Comparing industrial fisheries with artisanal fisheries, McCully shows that, per ton of fish harvested for human consumption, artisanal fisheries support approximately 30 times as many fishworkers, use less than a fifth as much fuel, produce very little discarded bycatch and cause less habitat damage. McCully's views demonstrate a perspective on problems in the global fishery of the 1990s that is in sympathy with the concerns of local, small-scale fishers in the two historical examples already discussed.

2.3 Development of the Modern Fisheries Management Paradigm

The regulation of fishery resources generally reflects the ethos, attitudes and interests of those directing policy. It is fundamentally a political matter. Politics, as Leftwich (1983: 21) notes, has to do with the use and distribution of power and resources, and "control over resources is the essence of power in any society" (1983: 219). Thus, patterns of resource use

both reflect and reinforce established patterns of distribution of power and contribute to their persistence through social, political and economic structures and cultural traditions (see, for example, Leftwich [1983: 219-261]; Putnam [1993: 123-157]). Particular patterns of economic production are entrenched by what Randall (1981: 150) refers to as "conservative reinforcement".

At the end of the nineteenth century the fishery policies of the industrial nations expressed a commitment to the principle of the "freedom of the seas" based on the confident assertion that "in relation to our present modes of fishing a number of the most important sea fisheries, such as the cod fishery, the herring fishery, and the mackerel fishery, are inexhaustible: that is to say that nothing we do seriously affects the numbers of fish" (Huxley's famous inaugural address as President of the Royal Society 1883, as cited in Dyson [1977: 269])[11]. Thus, there was no acknowledged need to regulate in the interests of conservation. This was a period of unrestricted capital expansion and global colonisation.

The North Sea soon provided evidence that industrial fishing could depress stocks over a large area of ocean. Dyson (1977: 274) explains how at the beginning of the twentieth century the North Sea was one of the first places to be intensively fished on an industrial scale by steam-driven trawlers. There were some indications of declining catch rates prior to World War I. Hostilities in the North Sea caused fishing to be suspended for four years (1914-18), and after this, when fishing resumed, catch rates rebounded dramatically before rapidly falling off again over the next four to five years. This clearly linked fishing effort with declining stocks. However, it was not until after World War II that serious measures to conserve ocean stocks began to be put in place. Since then there has been a gradual evolution of fisheries policy in the industrial nations. A guiding ethos for this trend has been the perceived need to curb the growth of fishing effort that occurs in open-access conditions. In the 1970s the concept of "freedom of the seas" began to be curtailed as coastal nations extended jurisdiction over fisheries, and other matters, to 200 nautical miles offshore. Limited-entry licensing policies were widely adopted in the 1960s and 1970s restricting the number of participants in certain fisheries, and more recently property-rights mechanisms based on instruments such as individual transferable quota (ITQ) have increasingly been adopted, effectively enclosing and privatising many fisheries. This policy trend is supported by a management rationale that is the basis of what can be regarded as the mainstream, modern fisheries management paradigm.

[11] Many local fishers, as will be discussed in the Newfoundland chapter, did not share this "official" global view.

2.3.1 The Tragedy of the Commons and the Rationale for Enclosure

Free or open-access to fishery resources is generally regarded by fishery managers as the fundamental cause of fisheries management problems (Rothschild 1983: 160). McVay (1966) linked overfishing to the "freedom of the seas", and Hardin (1968) examined the issue more broadly in his essay "The Tragedy of the Commons" and established what has become one of the most influential (though frequently challenged and qualified) tenets of modern resource management theory.

Gordon (1954) and Scott (1955) established the link between open-access and overfishing in terms of economic theory. They laid the groundwork for the development of the equilibrium yield model that is one of the key theoretical concepts in modern fishery management (Schaefer 1954). The model illustrates the inevitability of (economic) overfishing in an "open-access" fishery (noted, for example, by Anderson [1977]; Waugh [1984: 4]; Arnason [1993]; Roberts [1997]; Phillips [1998: 43-58]). Hodge (1995: 38), while acknowledging this point, draws a distinction between economic overfishing and biological overfishing, and notes that open-access does not necessarily lead to biological overfishing. In theory, extra effort will, if permitted to do so, be drawn into a fishery up to the point that the marginal cost of effort equals or exceeds the marginal value of the fish it captures. Whether biological overfishing would occur at this economic equilibrium point depends on many factors. If fishing costs are relatively high, and the value of a particular target fish species relatively low there will be insufficient financial incentive to attract fishing effort to a level that threatens the biological sustainability of the fishery. There are many examples of biologically sustainable, open-access fisheries that support economically viable fishing communities. Nevertheless, the economic theory associated with the equilibrium yield model indicates that in these cases economic overfishing still occurs, and potential resource rents are dissipated as more effort is attracted into the fishery than a level that would provide for a maximum (surplus) economic return[12].

According to theory, biological overfishing occurs in open-access conditions if the marginal price of the fish caught is high enough, and the marginal costs of fishing effort low enough, to encourage entry of so much effort that the stock is harvested with such intensity as to depress its biological productive capacity. Yield (in biomass rather than economic terms) from the fishery is less than it would have been if subjected to a lower level of total fishing effort. The marginal efficiency of fishing effort is, therefore, a key factor in biological

[12] Surplus economic return can be considered as the profit from fishing activity after all fishing costs are covered and is sometimes referred to in economics terms as resource rent.

overfishing. This is why technological advances that increase the "efficiency" or power of fishing effort, such as the use of trawl nets, as in the two examples previously discussed, is associated with increased concern about biological overfishing. For the same reason many traditional forms of fisheries management have regulated the efficiency of the gear that can be used. This is also an important part of the explanation of why the major gains in fishing power and efficiency that have occurred with the developments, over the twentieth century, of mechanised propulsion and the use of fossil fuels, as well as in other aspects of fishing technology such as electronic navigation aids and fish-finders, are associated with an increased potential to overfish stocks.

Where overfishing is considered problematic in an open-access fishery, there are, in theory, two basic approaches for preventing it. (Many fisheries management systems employ combinations of these but may lean more towards one or the other.) Efficiency constraints can be applied to all fishers, typically through gear restrictions, sometimes referred to as input controls, and thus maintain what some may regard as an open-access fishery, but which might better be termed an equal-access fishery. Conservation, in such a fishery, generally rests on a range of constraints framed around ecological considerations, and on gear restrictions that limit the potential for individual profit-making to stimulate overfishing. Feedback mechanisms linked to yield and effort operate to promote sustainability. Operating on the margin of economic efficiency, any decline in fish stocks that causes a decline in catch per unit of fishing effort, results in sub-economic returns and fishing effort would, according to the logic of economic theory, be diverted to other pursuits, thus, allowing stocks to recover (according to the logic of theoretical, biological models). A resource-based tax is also likely to act as an economic efficiency constraint and, as Arnason (1993) points out, it is likely to inhibit effort. Many recreational fisheries operate on the open-access, efficiency constraint principle[13].

While the efficiency constraint option is the basis of many traditional, community based, resource management regimes, and may address the problem of biological overfishing, it does not prevent economic overfishing. Efficiency constraints result in the dissipation, typically to labour, of potential profit or resource rent. Fishers will still have an economic incentive to enter the fishery if it offers better rewards than other options, and competition will (in theory) cause returns to each fisher to reach a marginal level, i.e., a level at which income is comparable to that available from other employment options. It is important to

[13] Analysis of the economics and incentives in recreational fisheries can be used to bring into question the whole rationale behind the goal of promoting "economic efficiency" in commercial fisheries (for example see Larkin [1977], Kearney [1999], Phillips [1998: 43-60]).

recognise that "economic overfishing" of this sort, while not yielding an economic surplus (or resource rent) can be biologically sustainable and support prosperous fishing communities (for example, Stoffle *et al.* [1994]; Davies [1995: 230]). This fishery management approach tends to promote wealth equalisation and is often favoured by small-scale fishers and their communities. It may be characterised as a "social fishery" rather than an "economic fishery".

An alternative to efficiency constraints is to control fishing effort by limiting the total catch with a quota. Once an established quota has been harvested the fishery is closed, thus conserving remaining stocks. This approach allows the fishing effort to be restricted to a level that (in theory) allows a surplus economic yield to be produced. A common, competitive quota, however, still encourages rent dissipation as a consequence of "capital stuffing" and the "race for fish" as participants compete to catch as large a portion of the common quota before others do, because once the quota is harvested the fishery is closed to all. Those who fish fastest and hardest get the largest share of the total catch. This causes participants to invest in more powerful vessels and more efficient gear in order to gain an edge on their competitors, and this leads to overcapitalisation as the cause of rent dissipation, and economic overfishing is again considered to occur. The solution (in theory) is to allocate shares of the total catch quota as individual quotas among a limited number of participants, thus removing the competitive dimension that stimulates economic overfishing. Clark (1993) points out that private property rights are not required for conservation but are essential to the production of an economic surplus. If quota are tradable, market mechanisms can operate to allocate catch to the most efficient harvesters and economic efficiency is promoted. This provides a theoretical rationale for the adoption of fishery management systems based on private property mechanisms such as ITQ. A key objective is to maximise economic efficiency in terms of resource rent.

The ITQ approach, in theory, allows the most efficient harvesting technologies to be used to generate the maximum economic surplus. If unrestricted, these efficient technologies, as previously discussed, can have the potential to overfish the resource. Thus, in fisheries managed to maximise rent through the use of mechanisms such as ITQ, sustainability relies, to a great extent, on the combined effectiveness of fishery science and quota enforcement. Science has to determine an ecologically "safe" harvest level upon which the allocation of quota is based, and enforcement mechanisms have to ensure that quota restrictions are observed where conditions of "economic efficiency" mean that there is likely to be an economic incentive for individual fishers to cheat. Fisheries managed with an emphasis on this approach conform to the "economic fishery" paradigm, which tends to favour the

interests of institutional science and other potential rent-seeking stakeholders and professions, of capital rather than labour, and of the centre rather than the regions.

2.3.2 The Trend Towards ITQ in Fisheries Management

ITQ based fishery management was first widely adopted in South Africa, New Zealand, Australia, and Canada, all former British colonies, and in Iceland and the Netherlands. In South Africa ITQ was identified by Hersoug and Holm (2000) as an instrument to regulate resource use so as to perpetuate racially based social inequality. Van Stittert (2002: 295), however, suggests that class rather than race is the key issue. He examines fisheries reforms of the 1940s, and the post-apartheid reforms of the 1990s, and suggests that the "redistribution agenda in both instances was subverted in favour of a consolidation of monopoly capital and state control over the marine commons". Hutton, Kevern and Pitcher (1997) note the limited success of redistribution policies. In New Zealand, ITQ in fisheries management is viewed in some quarters as "part of a particular political and social agenda" that has led to the exclusion of small-scale and independent fishers from fisheries which have fallen "increasingly under the control of large, profit seeking corporations" (Duncan 1995: 97). In Iceland, with an economy heavily dependent on fisheries, ITQ remains contentious due to concerns about quota concentration and the effects of ITQ based management on social equality and economic development (Eythorsson 2000; Hannibalsson 2001; Matthiasson 2001).

Fisheries management in the European Union is complex. Derogations from the Common Fisheries Policy (CFP) provide for national management of inshore waters to 12 nautical miles. In some cases this provides protection for small-scale, coastal fisheries and the interests of adjacent fishery dependent communities. Paradoxically, these derogations often provide well-managed fisheries in contrast to the general mess of the CFP. Within the combined offshore waters of the EU member states' Exclusive Economic Zones (EEZs), quota systems form the basis of management. A total allowable catch (TAC) is set for each species and divided into national quotas. Member states manage national quotas in different ways ranging from ITQ to competitive 'free fishing' until the national quota has been caught (Hoefnagel 1998: 81). The CFP is widely acknowledged to be dysfunctional. Unlike the Common Agricultural Policy the fisheries policy was scarcely concerned about social impacts (Symes 2000: 3), and its performance has also been poor in terms of conservation and economic efficiency (Symes 1999: 4-11).

In the 1980s - 1990s, Norwegian fisheries management was considered to be markedly more effective than the CFP of the EU. Quota based management was resisted in Norway during the 1980s where concern for social equity and regional economic wellbeing provided a countervailing force. But individual vessel quotas (IVQ) were temporarily introduced to address a crisis in some Norwegian fisheries in 1990 and, once in place, associated vested interests have become committed to maintaining this system (Holm, Ranes and Hersoug 1998; Hersoug, Holm and Ranes 2000). The effect of the IVQ/*quasi* ITQ system[14] in Norway has not served to reduce over-capitalisation but has increased the profitability of a limited group of fishers (Williams and Hammer 2000). Maurstad (2000: 37) shows that "instead of limiting economic expansion", the move to quota and the "introduction of formal bureaucratic regulations provided fishers' incentives to expand". Hersoug, Holm and Ranes (2000: 442, 443) suggest, based on analysis of the politics of local, state, industry, and fisherfolk interests, that the trend towards ITQ and "privatisation of the commons" will continue and "contribute to the eradication of the small-scale fleet". Indeed, Arland and Bjorndal (2002) advocate conversion of the IVQ system to a more easily transferable ITQ system to promote greater economic efficiency in the industry. There is likely to be ongoing debate and political manoeuvring.

Canada has favoured the implementation of fisheries management systems based on ITQ and this issue is discussed in relation to the failure of the Newfoundland cod fisheries in chapter 3. Australia has also favoured ITQ based systems for Commonwealth managed fisheries, and some Australian states have also preferred ITQ based systems for managing fisheries within their jurisdictions. Tasmania, notably, adopted ITQ in its abalone and rock lobster fisheries[15]. The introduction and consequences of the ITQ system in the Tasmanian rock lobster fishery will be discussed in chapter 4.

France, constitutionally affiliated with the traditions of an eighteenth century revolution that was inspired by the democratic, humanist values of the Enlightenment, has resisted ITQ. French law has "moved towards an explicit rejection of property rights over fishery resources" (Prat 1998: 49). This reflects an underlying French legal disposition to avoid "patrimonialisation" of fishery resources in order that they retain the status of a "collective heritage" (Prat 1998: 52). Individual fishing quotas (IFQ) have also been controversial in the USA, a country with a constitutional framework that reflects a similar revolutionary heritage to France (albeit one that generates some interesting domestic versus international policy

[14] IVQ are considered tradable to a degree through sale of the vessel to which they are attached.
[15] In contrast, the Western Australian lobster fishery is managed by limited entry.

contradictions arising from the role of the US as global political and economic hegemon). In 1996 only three fisheries under Federal jurisdiction were managed by IFQ systems and their further implementation was temporarily blocked by Congress subject to enquiry and review. Greenpeace campaigned strongly against IFQ (Jennings 1999) and Criddle and Macinko (2000) have suggested that further development of IFQ for US fisheries is unlikely because of opposition based on concerns about equity and the tendency of these systems to encourage the proliferation of rent-seeking behaviour. It is likely, however, that pressure for IFQs, ITQs or similar instruments will continue given the concentration of wealth that generally benefits some parties by the transfer of public resources to private interests when these systems are adopted.

Worldwide the trend has been towards the adoption of ITQ in fishery management. It is a "consequence of modernisation and market economics" (Symes 2000: 5) and of policy measures that have favoured capitalised, industrial sectors at the expense of small-scale coastal fisheries. Opposition to ITQ based management systems generally focuses on two areas of concern – they often fail to effect resource conservation, and, they undermine social equity. ITQ based fisheries are often associated with anti-conservationist practices including quota busting, quota-induced bycatch dumping, high-grading, price dumping, and discount driven stock depletion and frequently it is "enclosers" rather than "commoners" who cause environmental destruction (Anon. 1992: 128).

The dependence on fishery science for conservation in quota-based fisheries is also an area of concern. Wilson *et al.* (1994) and Sharp (1995) argue that fishery biosystems are characterised by chaos, complexity and unpredictability and cannot, therefore, be effectively modelled. The theoretical concept of sustainable yield and regular annual harvests that promise the predictability and stability required by corporate-capitalist production systems is, therefore, often unrealistic, and setting fish harvest quotas based on these erroneous assumptions can lead to overfishing when stocks are depressed by other factors. Correspondingly, a strong argument can be supported, for example by Wilson *et al.* (1994), in favour of fisheries management systems that are more ecologically sensitive and more responsive to stock fluctuations. There are a great many studies that demonstrate the resilience and sustainability of ecologically flexible, often small-scale, pluriactive, community based fisheries with devolved systems of management that focus on social rather than technical outcomes (for example, Pinkerton [1989]; Crean and Symes [1996: 200]; Baines [1995]).

Copes (2000: 1), referring to matters covered in Copes (1994; 1997; 1998), lists some objections to ITQ on social equity grounds:

> *Gratis quota allocations give windfall gains to the privileged few. Capitalisation of quota rights at high values encourages their accumulation in the hands of corporations and wealthy investors. This facilitates financial and geographical concentration of fishing operations, with substitution of capital for labour, causing irrationally excessive job losses. High quota costs deprive crew members of the traditional opportunity to become independent owner-operators as they can no longer afford to purchase a vessel with quota privileges. Communities, historically dependent on adjacent fish stocks, find their economic viability - and sometimes their very existence - threatened when their resources are alienated to outsiders. Members of the public are scandalized by the gifting of access rights to public resources, privileging an emerging class of "armchair fishermen" who become rentiers, living off the avails of quota leasing.*

Conservation is often a focus of debate, but concerns linked to social equity provide a powerful underlying motive for opposition to fisheries privatisation. Enclosure provides exclusive rights to some, but denies others access to resources and opportunities. It creates and entrenches inequality. The tendency for limited entry licences to become capitalised beyond the means of ordinary fishers (Pinkerton 1989: 18), and for growing inequality to be associated with ITQ based fisheries (Palsson and Helgason 1996: 18), has been recognised for some time. Enclosure causes inequality in two ways. Often the initial allocation is inequitable as the strong get the largest share while the weak are excluded, but there is also the matter of opportunity costs. When more and more of the resources available to a society become privately owned, the economic options of propertyless individuals becomes increasingly restricted and this renders them increasingly vulnerable to exploitation. In this vein, the social evils associated with resource monopolisation and enclosure (as will be discussed further in this chapter) have long been concerns in Western political philosophy.

The debate for and against fishery privatisation and rationalisation through the use of property rights instruments such as ITQ has, understandably, been strongly linked to ideological positions, and these have been adopted by stakeholders with vested interests to defend. Academia has been split; the traditional resource management-linked disciplines, grounded in biology and economics, tend to favour the private property solution to the "problem of the commons", while, on the other hand, social scientists have tended to oppose privatisation because of concerns about the socio-economic impacts (Symes 1998: 5-7; Conner 2000: 33;). The social sciences have received some criticism for monitoring the adverse effects of privatisation, but not promoting alternative management systems, but in

fairness, many informative case studies of successful 'social fishery' alternatives[16] have been presented. It is also difficult to challenge the core presumptions of the mainstream bio-economic fisheries management approach because, to do so, is to challenge the core structural social and economic presumptions of modern Western society.

2.4 Sustainable Communities

State fishery managers, imbedded within institutions oriented towards fostering capitalist interests, typically operate within the mainstream bio-economic paradigm, but fail to recognise that it is a product of ideology (Ward and Weeks 1994), and institutional self-interest. Operating within the paradigm, their role is to translate its basic tenets into "rational" fisheries policy and management, having to negotiate the complexity and obstruction offered by diverse social, political and economic forces in order to do so. Theirs is often a frustrating and thankless task because of the competing interests that are involved. Their perspective tends to be limited because their management powers are largely limited to the regulation of fishing effort (Ward and Weeks 1994). At the micro level of fishery management the ideological aspects of fishery debate may seem irrelevant and an irritating distraction to the perceived role of fisheries management as being limited, simply, to the implementation, in a given fishery, of enforceable and effective regulation to address straightforward issues of economic efficiency and conservation. But this reductionist view overlooks many of the key factors and interactions that are critical to sustainable fisheries and sustainable societies.

While the social fishery versus economic fishery debate addresses, to a significant degree, this immediate concern with regulating fishing activity, it also takes on a wider relevance and a more holistic perspective with respect to the concept of sustainable communities. Pinkerton (1989) and Symes (1996:5) explore the idea that environmental sustainability is dependent on underlying socio-cultural conditions, and Clay and McGoodwin (1995) emphasise that there is a two-way interaction between society and the environment. Jentoft (2000) articulates this issue convincingly. He argues that ethics, community integrity and cohesion built upon shared and common interests are essential to achieving fisheries sustainability. This argument is made with respect to achieving effective compliance with conservation measures by participants in fisheries. It becomes even more critical with regard to wider catchment issues.

[16] These fisheries, not coincidentally, often tend to be structurally incompatible with capitalist interests.

Overfishing and fishing related damage to habitat and ecosystems are not the only threats to fisheries. The capacity of many marine and freshwater environments to sustain healthy, productive fisheries is vulnerable to the effects of pollution and other forms of ecological disruption. Pearce (1995), for example, identifies environmental impacts relating to catchment irrigation practices as the cause of great damage to the fisheries of the Aral, Black and Caspian Seas, and Thompson (1995) links the decline of some Mediterranean fisheries to the disruption of annual patterns of nutrient flow from the River Nile following construction of the Aswan High Dam in Egypt. These are large-scale examples of a very widespread problem. It is well known that dams and other in-stream obstructions also impact severely on migratory species such as salmon (see, for example, Montgomery 2003: 3, 62-68, 81-82, 108-110, 160, 132, 179-202, 233). These and other forms of habitat and catchment impact are often critical to fisheries sustainability, but are generally beyond the control of fisheries managers.

Sustainable management of coastal and inland fisheries, where problems such as catchment pollution may pose a threat, is increasingly recognised as requiring a whole of system approach. For this to work effectively there must be institutions and socio-political and economic structures that integrate potential conflicts between fishery and catchment interests. Some authors, such as Brubaker (1996), see private property rights and legal instruments as the means to achieve this. Others, like Jentoft (2000), with more of a social science perspective, emphasise the sustainable communities argument, which becomes increasingly salient in dealing holistically with catchment issues. This is where issues of ethics and equity, key concerns in the social fishery versus economic fishery debate, again assume critical importance to sustainability - the argument can be extended to suggest that these qualities, in general, are essential for the sustainable operation of social-ecological systems – and concern about ethics that transcends traditional stakeholder-interest-arbitration is gaining increasing reference in fisheries. It is a concern that resurrects the underlying political-economic values inherent in opposing ideological positions in the sustainable resource management debate.

2.4.1 Global Neoliberalism

It is important to acknowledge the influence of fashions or trends in the global political environment on the trends in fisheries management being discussed. Squires *et al.* (1995: 143), Apostle *et al.* (2002: 11-17), and Mansfield (2004), for example, specifically link the worldwide trend towards the adoption of fisheries management systems based on ITQ to the

global ascendancy of neo-classical economics or neoliberalism[17], and this provides an explanation for why alternative approaches[18] to sustainable fisheries management are either not adopted, or are supplanted by those that emphasise private property rights and market mechanisms. It is a logical extension of the assumption that resource management is an intrinsically political process and therefore reflects the prevailing neoliberal political climate.

Martinez and Garcia (2000: 1) describe neoliberalism as "a set of economic policies that have become widespread during the past 25 years or so" associated with the "rapid globalisation of the capitalist economy". Its main features include: abdication to the rule of the market; the reduction of public expenditure on social services; deregulation (in the interests of increased profits/economic efficiency); privatisation of state-owned enterprises, assets and resources (including banks, transport infrastructure, power and water distribution systems, schools and hospitals); and elimination "of the concept of 'the public good' or 'community' and replacing it with 'individual responsibility'" (Martinez and Garcia 2000: 2).

Coronil (2001: 70-71) discusses the consequences of neoliberal globalisation as presented in a report (United Nations 1997) of the United Nations Conference on Trade and Development (UNCTAD) "that documents rising worldwide inequalities". He points out that this report reflects an establishment position grounded in scholarly research, and is not an extreme or marginal-leftist view[19]. Key effects of globalisation noted in the UNCTAD report include: widening income inequality within and between countries as the rich have gained everywhere at the expense of the poor and middle sections of society; "capital's share of income has increased over that assigned to labour"; "employment and income insecurity are spreading worldwide"; global economic growth has slowed, and; "finance has gained an upper hand over industry, and rentiers over investors" (Coronil 2001: 70-71). These features associated with neoliberal globalisation strike a resonance with the social concerns widely expressed about privatisation of fisheries through property rights based management as discussed earlier. The UNCTAD report (United Nations 1997) also argues, notes Coronil (2001: 70), that these "troublesome features ... pose a serious threat of a political backlash against globalisation". Other establishment contributors to the debate who recognise the benefits that have come from globalisation, nevertheless acknowledge the problems of

[17] For the general discussion here the terms neoliberalism and neo-classical economics are regarded as dealing with the same basic economic philosophy.
[18] Alternative approaches that emphasize a range of social and community values rather than the economic efficiency agenda of the mainstream management paradigm.
[19] Coronil also presents a compatible view of globalisation from the left of politics.

inequality, insecurity and poverty, and the link between these symptoms of the way that globalisation has occurred and the rise of terrorism as expressed in the September 11, 2001 attacks on the US (De Soto 2002; Sen 2002; Soros 2002). George (2002) rejects the terrorism connection in relation to the September 11 attacks but concedes that deprivation and frustration obviously lead to violence.

The theoretical basis for neoliberal philosophy - that markets free from state intervention provide the best mechanisms to allocate resources - is attributed to Hayek (1944; 1960), and neoliberalism was promoted, according to T. Ali (2003: 312), as a "victorious counter-Revolution" led by Margaret Thatcher and Ronald Reagan in the 1980s as the Cold War came to an end, and, correspondingly, the principal ideological challenge to Western capitalism was greatly diminished. Neoliberalism is seen by writers such as T. Ali (2003: 311-315) and Wood (2003: 130-137) as an ideology promoted to serve Western and especially American capitalist imperialism. Wood (2003: 132) argues that global economic instruments such as the International Monetary Fund (IMF), World Bank, and World Trade Organisation (WTO) have imposed "structural adjustment" around the world "to open other economies, their resources, their labour and their markets, to Western, and especially US, capital". T. Ali (2003: 313) notes that a priority for the WTO is to "accelerate the privatisation of education, health, welfare, social housing and transport" to create investment opportunities for Western capital. Worldwide, the alienation of people from a sense of place and access to resources, the increasing social polarisation, rising unemployment and increased sense of income insecurity associated with neoliberal globalisation promotes social disengagement. It gives rise to intolerance and prejudice, and contributes to the rise of religious and other forms of fundamentalism (MacKay 2005).

These conditions of social disengagement are out of step with the social cohesion and communitarian spirit identified as necessary attributes of Jentoft's (2000) concept of sustainable communities as discussed earlier in the chapter. Prospects for sustainability are also jeopardised by the irrationality inherent in the simple, certain solutions offered by various forms of fundamentalism, including those offered by economic rationalists, who, Mackay (2005: 4) explains, are a "variety of fundamentalist, because they claim to have the one, true answer – the free market". The association between resource alienation, poverty, inequality, the rise of religious fundamentalism and unsustainability will be discussed further in the Pakistan case study in chapter 5.

The connection between neoliberal trends in fisheries and global neoliberalism in general can be viewed in two ways. Fisheries rationalisation and privatisation, as suggested in the

introduction to this section, can simply be regarded as a consequence of the extension of the political influence of global neoliberalism to this sector, as it has been extended, with privatisation, into others, often where there are no apparent resource conservation issues (other than economic efficiency) to consider. Alternatively, one can follow the rationale (as described in relation to the development of the mainstream fisheries management paradigm) that the neoliberal restructuring of fisheries, through their enclosure and privatisation, is the necessary response to dealing with a resource crisis arising from the confrontation of the demands of human population and technological capacity with the constraints of resource limits. This perspective, with its emphasis on environmental crisis as an underlying cause of the neoliberal trend, could be extended from the fisheries case to the more general, to suggest that the ascendance of neoliberalism as a global phenomenon may also be a consequence of an underlying global environmental and resource crisis. Neoliberalism's tendency towards selfishness, growing inequality and community dysfunction may, therefore, reflect a natural response of human societies to conditions of intensifying resource scarcity. But it is a response that can lead to resource management and societal failure.

2.4.2 Why Societies Fail

Jared Diamond (2003; 2005) examines the interrelated social and ecological factors that cause societies to collapse and addresses the question of why some societies, when faced with crisis, fail to take the measures that could save them. One of Diamond's key findings is that they are more likely to fail in this way if the decision-making elites and their interests are insulated, at least in the short term, from the effects of social and resource management practices that are leading, in the long term, to social and ecological failure. Societies with a high degree of inequality are likely to be most at risk of having their decision-making elites insulated in this way. Highly polarised societies are, not coincidentally, also likely to be ruled by the authoritarianism and irrationality associated with various forms of fundamentalism.

Diamond's insights emphasise the need for a holistic approach when dealing with the challenges of sustainability. They highlight the importance of the ethos and attitudes of a society in dealing with resource management questions, and link these attitudes to social and political structures. Within this holistic perspective, issues such as inequality, and arguments that are commonly linked to ideological positions on resource management, emerge to assume critical and practical importance.

McMichael (2001a; 2001b) is another writer who takes a holistic approach. He draws a link between the September 11th, 2001 attacks on the USA and other human disasters, including epidemic disease and political and military actions, and the global environmental crisis with its origins in global economic and social trends (2001a: n.p.). This approach is gathering momentum in the post 2001 world as the emphasis of concern shifts from environmental to socio-political dimensions of the interrelated aspects of sustainability. There is a growing awareness of the dangerous trend towards the politics of fundamentalism, or authoritarianism based on various forms of ideology, and that this is linked to the nature of resources and to economic structures that favour the concentration and monopolisation of power. It is also linked to socio-political structures that are dysfunctional in terms of their inability to serve the broader common interest and the interests of sustainability - which returns the discussion to the issues at the heart of the debate over trends in fisheries. Can fishery restructuring that is driven by an ideology that emphasises selfish rather than common interests, and serves to concentrate wealth in few hands while dispossessing many, serve the broader common interest in sustainability? Clearly the answer is no when a society faces challenges relating to resource scarcity, and sustainability rests on the ability to address them in a rational way, undistorted by internal competition and a decision-maker preoccupation with sectoral interests and rivalries that stand in the way of furthering the common interest. This holistic perspective has well-established precedents among the foundation texts of Western political philosophy. Plato, more than two thousand years ago, provided a discourse on governance in *The Republic,* and emphasised the dangers of allowing the rulers to accumulate private property which would cause conflicts to develop between their private interests and the broader common interest that they were entrusted to serve. He noted that the corrupting influence of the pursuit of private wealth inevitably caused the ruin of states (Cornford 1941: 270-1, 288).

Thomas More's *Utopia,* written nearly five hundred years ago, contains a critique of the enclosure or privatisation of the commons and the rationalisation of land use to maximise rent[20] without regard for the wellbeing of traditional tillers of the soil and of rural settlements (Adams 1975: 14; Logan and Adams 1989: 19). This bears remarkably close comparison with modern critiques of the enclosure of fisheries commons, and of fisheries rationalisation in the interests of economic efficiency, and at the cost of displaced fishworkers and the demise of coastal communities. More questions the morality of allowing landowners to

[20] Agricultural land was being converted to sheep pastures for wool production. This use required relatively little labour compared to traditional agriculture, which produced a greater diversity of crops and livestock, employed many and, thus, sustained communities. The overall economic production was less under wool production than traditional mixed agriculture but yielded a higher rent to the landlord because there were so few labourers to support.

pursue self-interest in the use of private property if this entails a greater cost to others and to the "Commonwealth". He also saw danger in the concentration of wealth in too few hands and argued: "restrict the right of the rich to buy up anything and everything, and then to exercise a kind of monopoly" (Logan and Adams 1989: 19). More noted the corruption of politics by self interest and commented on the futility of providing wise and honourable council to encourage kings to govern in ways that serve the broader public interest: "if I proposed wise laws... and tried to root out corruption, don't you suppose I would be either banished forthwith, or treated with scorn?" (Logan and Adams 1989: 29). But, he noted, one could readily advance one's own interests and those of one's friends when in public office (Adams 1975: 22, 23, 30; Logan and Adams 1989: xxii, 14). More, like Plato, also commented on the futility of trying to persuade the people to look after their own interests (Logan and Adams 1989: 38). He muses that it may be better to avoid sharing their plight and observes that it is wiser to keep away from 'public business' altogether, sentiments that might be shared by many disillusioned resource managers in modern times[21]. More (Logan and Adams 1989: 33-34) also raised the issue of social sustainability, questioning whether a king is more secure if he keeps his people impoverished so they don't become "insolent with wealth and freedom", or looks after their wellbeing because "who is more eager for revolution than the man who is most discontented with his present position?" This question addresses similar concerns to those raised in the UNCTAD report, discussed above, about the "employment and economic insecurity" stemming from neoliberal economic policies, and the threat of a political backlash that this poses (Coronil 2001: 70-71), a threat that underlies the intensification of fear of fundamentalism and violence currently being experienced (and manufactured) world-wide, and the fear of public dissent that the "war on terror" provides a justification to suppress.

The legacy of Plato and More is also evident in the views of Marsh (1864), one of the intellectual pioneers of American conservation. Marsh wrote about the destruction of forests and fisheries (1864: 104-108), and considered the efficacy of conservation measures based on severe penalties (1864: 241) and private property (1864: 258) with respect to prevailing socio-political and economic conditions. He also suggests that: "the human race seems destined to become its own executioner", and notes that "domestic corruption has destroyed more nations than foreign invasion" (Marsh 1864: 286). He expresses a particularly scathing view of private corporations noting their unscrupulous lack of conscience, and their tendency to corrupt governments and to provide false "scientific" information where a motive exists to

[21] This issue is relevant to a section in chapter 3 that examines the advisory role of the Canadian Department of Fisheries and Oceans in the lead up to the 1992 Northern cod fishery crisis.

falsify reports: "every person conversant with the history of these enterprises knows that in their public statements falsehood is the rule, truth the exception" (Marsh 1864: 51).

Marsh also observes:

> *The practice of irrigation - except in mountainous countries where springs and rivulets are numerous - is attended with very serious economical, social and political evils ... [t]here is a constant tendency to the accumulation of large estates of irrigated land in the hands of great capitalists, and consequently to the dispossession of the small cultivators, who pass from the condition of owners of the land to that of hireling tillers (1864: 231).*

Marsh's comments on land use, like those of More, are relevant to the modern fisheries debate where there are concerns about the economic, social and political "evils" of management trends that favour resource enclosure and the concentration of ownership in the hands of capital, and the consequent dispossession of small-scale fishers who pass from owner-operators to contract harvesters. These issues, while relatively new in fisheries, fit within a long established paradigm dealing with social, political, economic and environmental resource issues. This paradigm provides some perspective in the analysis of the case studies in the following chapters.

2.5 Conclusion

Chapter 2 described the global fisheries crisis in terms of increasing competition between capital and people for scarce resources, which, at a global level, have reached the limits of their productive capacity. Global trends in production and allocation of these resources were examined and linked to broader neoliberal political trends, and the theoretical implications of these trends for socio-political and environmental sustainability was discussed. The following chapter examines the collapse of the Newfoundland cod fisheries in the 1990s. The role of social and cultural factors, conflict between small-scale coastal fishers and capitalised interests, the relationship between fish corporations and the state, and the influence of this on fishery policy and science, will all be considered in developing an understanding of the underlying causes of the Newfoundland fishery crisis. This analysis will be further developed in chapter 4, and with increasing emphasis on issues of socio-political dysfunction in the Pakistan case study of chapter 5.

Chapter 3

The Newfoundland Cod Fishery: A Case Study of Unsustainability

Figure 3.1 Map of Newfoundland showing its location off the east coast of Canada

Image source: NASA 2006

Map source: World Atlas Inc 2004

3. The Newfoundland Cod Fishery: A Case Study of Unsustainability

Figure 3.2 Typical Newfoundland fishing outport, Quidi Vidi, St Johns

3.1 Introduction

The collapse of the Northern cod fishery of coastal Newfoundland in 1992 serves as a defining case study for the global fisheries crisis of the 1990s. Many of the issues discussed in chapter 2; resource limits and allocation conflicts between capital and labour, the "social" versus "economic" fishery, the modern fisheries management paradigm based on science and enclosure - and its apparent failings, and issues to do with equality and the concept of sustainable communities; are all relevant to the Newfoundland case study and it serves to illustrate their interactions and effects.

The aim of the chapter is to explore the underlying causes of Newfoundland's fishery crisis of the 1990s and to understand these causes in a broader historical and social context. The study is intended to be sufficiently analytical and in-depth to stand alone as a useful contribution to knowledge about the Newfoundland fisheries. Further, it provides some insights that have a wider application, contributing to an understanding of more general causes of resource failure. In particular, Newfoundland serves as a useful case for comparison with Tasmania (the subject of chapter 4) due to a number of cultural, political, geographic and economic characteristics that the two islands have in common. Issues raised in the chapter are also developed further in the Pakistan case study in chapter 5.

This is the longest chapter in the thesis (approximately 45,000 words) and begins with an overview of the events leading to the 1992 crisis. Then discussion of geography, the natural history of cod and the economic history of the Newfoundland fishery provide background information on factors that influenced the pattern of European settlement. The way that political and economic restrictions have influenced the development of the fishery and Newfoundland society for five hundred years is established as a key theme. It is discussed in relation to the political and economic domination of Newfoundland by English mercantile interests in the sixteenth and seventeenth centuries, and by St John's based merchants from the mid-nineteenth century until the economic crisis of the 1930s. Following World War II and confederation with Canada, these socio-political issues continue to be relevant, and an examination of the work of Brox (1972), Wright (1997; 2001), Alexander (1977) and Sinclair (1985) links the hegemony of an industrial vision with neglect of the inshore fishery, the entrenchment of inequality, contradictory policies and division and conflict within the fishery.

The chapter then examines events leading to the crisis of the 1990s, with particular attention devoted to Finlayson's (1994) investigation of the dysfunctional performance of the Canadian Department of Fisheries and Oceans. The role of Newfoundland's political and cultural structures as underlying causes of the crisis is also discussed and several of the post-1992 explanations for the crisis are analysed. Comparisons are made with Norway and Iceland, countries that have been more successful than Newfoundland in managing Atlantic cod resources, and this provides additional support for the argument that the underlying causes of the crisis are linked to systemic, structural or social factors that are characteristic of Newfoundland. Further support for this position is provided by reference to the work of Charles (1994) and Jentoft (2000), which articulates the importance of community integrity, equity and social cohesion as preconditions for sustainability; qualities that the analysis demonstrates to have been lacking in Newfoundland[22], where conflict, strife and opportunism undermined the capacity for collective action. The analysis explores the linkage between sustainability and resource policies that result from, and serve to perpetuate, social inequality, and this establishes an important theme that is developed further in chapters 4 and 5.

[22] While this generalisation of 'dysfunctionality' is applied to the Newfoundland fishery as a whole, there is strong community integrity, cohesion and functioning at a smaller, more local scale, within many of Newfoundland's rural communities as demonstrated by the work of Doug May's (2004) Community Accounts groups. The political and economic powerlessness of these local communities within the larger society is what undermines their prospects for sustainability. Similar circumstances occur in Pakistan's fishing communities to be discussed in chapter 5.

3.1.1 Background to the Crisis

Newfoundland's Northern cod fishery was one of the greatest fisheries the world had ever known and its failure in the early 1990s had a wide-ranging significance. For five hundred years, fishers from Europe, particularly the UK, France, Spain and Portugal, had been catching cod in Newfoundland waters (see, for example, Innis [1954]; Sahrhage and Lundbeck [1992: 90-102]; Harris [1990: 1]). The fishery had played an important role in the European discovery, conquest and colonisation of the New World and in the associated economies of trans-Atlantic trade from the sixteenth century onwards. Newfoundland cod became an important staple in Mediterranean countries and other places reached by European colonial trade including the Caribbean, Africa, and South America, and most especially of Portugal where *bacalao* was the national dish (Toussaint-Samat 1987: 319). The Newfoundland cod fishery, therefore, had cultural significance for people from around the Atlantic and beyond. But for the people of Newfoundland itself, it served as a central defining aspect of cultural identity.

Newfoundland's history, politics, and social and economic development had always been closely linked with the cod fishery. In the 1980s the fishery remained an important economic base for the Newfoundland economy (Munro 1980: 1-2) and at the beginning of the 1990s Harris noted, "[t]he vast majority of the Newfoundland coastal communities that were built upon a foundation of cod are still utterly dependent on that resource for their continued existence" (1990: 1). Most Newfoundlanders, if not associated directly with the fishery, had relatives who were, or were only distanced from involvement in the fishery by a generation or two (Finlayson 1994: 4). Thus, the collapse and closure of the fishery in 1992 impacted on many. The immediate economic blow was cushioned to some extent by transfer payments funded by the Canadian government. But the closure of the fishery has had a deep social and cultural impact on the people of Newfoundland because the island's sense of identity is, even now, intimately connected with it.

The failure of the fishery in the 1990s was blamed on a management regime that had developed in the wake of a previous stock collapse in the mid 1970s. This first collapse had been caused by overfishing and was a consequence of technology-driven expansion of offshore trawling effort, primarily by international fleets, in what had been a largely unregulated "open-access" fishery (Charles 1997). Supported by Hardin's (1968) tragedy of the commons thesis, and by arguments of the benefits that would result from enclosure and scientifically grounded management, Canada succeeded, in 1977, in gaining extended jurisdiction over coastal waters to the 200 nautical mile-limit from shore (see, for example,

Munro [1980]; Harris [1990: 1]; Finlayson [1994: 20-25]). With the exception of the nose and tail of the Grand Bank, the 200 nautical mile-limit enclosed most of the annual migratory range of the Northern cod stock and provided Canada with the power and the obligation to manage the fishery sustainably.

Following 1977, Canada's management policy for Northern cod[23] had emphasised the goal of rebuilding the spawning stock (Harris 1990: 2). It was optimistically forecast that with stock recovery and sound management the fishery could yield a sustainable annual harvests of around 550 000 tons (Kirby [1983: 242] cited in Finlayson [1994: 8]). Management goals therefore specified (what was thought to be) conservative harvesting in order to promote rapid stock rebuilding, while at the same time allowing a sufficient harvest to satisfy the needs of the fishing and processing sectors. At this time the capacity of the Canadian fishing and processing industries were encouraged to expand substantially to replace the foreign fishing effort that could now, in theory, be excluded by application of the 200 mile limit (Munro 1980; Finlayson 1994: 20-26; Schrank 1995). Nevertheless, there continued to be ongoing demands from foreign fleets with a long tradition in the fishery for access to a portion of the total allowable catch, and ongoing allocation conflicts between Newfoundland's traditional inshore fisheries and the more industrialised and capital intensive offshore sector.

In the early 1980s it was maintained that these conflicting pressures were being successfully managed. Stocks were reported to be rebuilding satisfactorily, and there was a sense of optimism about the long-term prospects for the fishery (for example, as expressed by Munro [1980]; Kirby [1983]). The tragedy of the commons problem had, in theory, been addressed, with the separation of science (as the impartial arbiter over the inherent conflict between the requirements for conservation and socio-economic demands on the resource) from politics (which dealt with conflicts over allocation). At this time the responsible management agency, the Canadian Department of Fisheries and Oceans (DFO), was held in high regard internationally and its scientists and managers enjoyed prestige among their international peers (Finlayson 1994: 24). The Northern cod fishery was widely regarded as a model of successful fisheries management, a demonstration of the benefits of applying modern, science-based fisheries management techniques. Thus, the failure of the fishery in the 1990s raised challenges to the management paradigm itself and to fishery management institutions

[23] The policy prescribed a harvest rate designated as F0.1, which allowed an annual harvest of approximately 20 per cent of the exploitable biomass. Hutchings and Myers (1995: 56-57) argue that in the late 1980s and early 1990s, as in the late 1960s, harvest rates actually exceeded 50 per cent of harvestable biomass.

and individuals, and stakeholder interest groups worldwide that were ideological and structurally affiliated with it. In the climate of acrimony following the collapse, the Canadian government's role in the mismanagement of the fishery through its agency, the DFO, received particular criticism (see, for example, Finlayson [1994: 19-32]; Newell and Ommer [1999a: 5]).

The roots of the crisis have elements of historical legacy. Newfoundland had been an important offshore fishing ground for European fleets since the beginning of the sixteenth century and shore stations had been occupied year round to service the fishery, but settlement had generally been discouraged (Brox 1972: 1). It was not until the first forty years of the nineteenth century that immigration and settlement occurred on a large scale. European colonisation of Newfoundland took place in a single wave of immigration in this period by people of two distinct ethnic groups, Catholics from Ireland and Protestants from the English western counties. Since this time population growth has occurred mainly from natural increase (Felt and Locke 1995: 203; Jonsson 1995: 272). These immigrants were drawn to Newfoundland by the cod fishery and they occupied over a thousand scattered coastal settlements adjacent to the inshore fishing grounds. These "outport" fishing communities came to characterise the traditional Newfoundland inshore fishery. The fishery operated from small boats in coastal waters, generally within a mile of shore and it changed little between the 1850s and 1950s. The annual catch for this period was remarkably stable, varying between about 200,000 and 300,000 tons (Harris 1990: 21-26)[24].

Dramatic transformation of the Newfoundland fishery began in the late 1950s with the expansion of industrial trawling, initially by European vessels in offshore waters. The annual catch increased substantially, peaking at over 800,000 tons in 1968 (Harris 1990: 2), far in excess of ecologically sustainable limits. As the offshore catch had progressively increased from 200,000 tons to 800,000 tons between 1959 and 1968, the catch in the inshore sector progressively declined from a little under 200,000 tons to only about 30,000 tons. From 1968 to the mid 1970s total landings from all sectors plummeted as the stock collapsed (Harris 1990: 32). This failure from overfishing by largely unregulated international fleets provided a background and justification for the push for extended jurisdiction by Canada, and this was realised with the extension of Canadian authority to the 200 nautical mile-limit on January 1, 1977. There followed a period of optimism as stocks increased and the Canadian fishery expanded to take the place of reduced foreign fishing

[24] Sahrhage and Lundbeck (1992: 90-102) also report estimates of annual catches of up to 250,000 tonnes from the period 1580-1750.

effort. Then in the mid 1980s, a declining inshore catch reminiscent of the decline that had preceded the collapse of the 1970s began to show signs of being repeated.

For several years in the mid 1980s, prior to the intensification of the crisis, traditional inshore fishers had been complaining of poor catches. This, they had insisted, was indicative of stock decline, and they blamed overfishing by the industrialised offshore sector. As the offshore catch had increased in the mid-1980s, the gain was offset by a decline in the landings of the small-scale inshore sector. For several years DFO scientists and managers dismissed the claims of the inshore fishers, maintaining that the stocks were in fact growing, rebuilding from the severe depletion of the early 1970s. On this basis they continued to set TACs that in hindsight proved to have been excessive. The offshore industrial sector, aided by constantly improving technology for finding and catching fish, was able to harvest the allocated TAC without difficulty. In theory, a decline in the size of the stock would be reflected in a reduction in the catch for a given amount of fishing effort. But continuous improvements in the efficiency of fishing technology allowed the offshore fleet to maintain catch rates, and masked, for this sector, the warning symptoms of stock decline. During the 1980s DFO scientists relied, to a significant degree, on catch per unit effort data from the industrial fishery as the basis for stock assessment. They failed to adequately take account of the way that efficiency gains associated with new technology distorted the assessments. The consequence was an overestimation of the size of the stock and a corresponding allocation of excessive TACs during the mid 1980s. This led to a dangerous combination of unrecognised stock depletion, and the buildup of human and capital capacity that was dependant on harvest levels that the fishery could not sustain. Harris' account (1990: 129-150) of these events has been accepted and incorporated into many subsequent studies, for example Finlayson (1994), Hutchings and Myers (1995), Schrank (1995), Blackwood (1996), Charles (1997) and Wright (1997; 2001).

In 1986 the Newfoundland Inshore Fisheries Association (NIFA) commissioned an independent inquiry into the scientific basis upon which the stock was being assessed. The findings of this inquiry, referred to as the Keats Report (1986) after its principal author, differed from the DFO assessment of the data and supported the inshore's concerns about overfishing. In response to the Keats Report and growing pressure from the inshore fishery, additional reviews of the data and the stock assessment process were commissioned (Alverson 1987; Harris 1990). These raised serious questions about the status of the stock and the methods of appraisal. They highlighted the uncertainty of the stock assessment process and confirmed the views of Keats (1986) and the fears of the inshore sector. They showed that the data upon which stock assessments had been made contained a high degree

of uncertainty and could be interpreted to show stock decline, rather than the growth that more optimistic assessments had indicated (Finlayson 1994: 33-80). A significant reduction in the TAC was now recommended (Harris 1990: 149)[25]. The high degree of uncertainty inherent to fishery science, which in itself was becoming increasingly discredited, enabled political and economic pressures to dampen the government's response to the looming crisis. The TACs were not cut sufficiently to avert the collapse. Finally, in 1992, when it was apparent that the stock had been fished down to an extremely low level and could no longer sustain a fishery[26], the government had no choice but to impose a moratorium, closing the fishery in an effort to protect whatever might remain of the depleted stock in the hope that it would rebuild. Initially the closure was for a two-year period and introduced as a temporary measure, but it has been extended and more than a decade after its introduction, the moratorium remains in place, with the cod stocks showing little prospect of recovery[27].

3.1.2 Fallout From the Crisis

Following the fishery's collapse, a considerable amount of academic research was initiated to investigate the causes of the crisis and its likely consequences. This produced an extensive body of work that provides a comprehensive study of the failure of a modern, Western society to achieve sustainable management of a renewable resource.

Several factors have contributed to the effectiveness of this research. First, because of the scale and significance of the social, economic and political implications of the crisis, the resources made available were substantial, enabling a large body of work spanning the perspectives of many disciplines and interest groups to be produced. Second, researchers were able to closely scrutinise the role played in the crisis by powerful vested interest groups such as the industrial sector, the inshore fishers, and, perhaps, most especially, by government agencies such as the DFO[28]. The result of this exposure to critical scrutiny (for

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[25] The economic implications of so severe a reduction in the TAC made this course politically untenable. The fishery had developed a significant inertia with social, political and economic components that made it difficult to reduce the harvest level. The build up of this capacity related inertia had been supported by the optimism that had accompanied extended jurisdiction.

[26] Charles (1997) notes that the moratorium was only imposed when the industrial trawlers could not find any fish to catch at the beginning of the 1992 season.

[27] Finlayson's (1994) analysis of these events is discussed more thoroughly later in the chapter.

[28] Generally, state institutions are able to use embedded power and state authority to shield themselves from too close and critical a scrutiny, and they often gain added protection from affiliated structures. In this case the DFO had become thoroughly discredited by its management failure and, in addition, it had lost the support of the political sphere of a government embroiled in the political fallout from the crisis.

example by Finlayson [1994]) provides a revealing insight into dysfunctional processes and structural characteristics in the fishery and how these contributed to its failure.

Another factor that contributed to the effectiveness of research into the crisis relates to the nature of Canadian society and the Canadian academic system. This provides an environment in which researchers enjoy a relatively high degree of academic independence, which is a vital prerequisite to the development of a healthy culture of critical analysis of government policy and the role of other powerful stakeholder groups in resource management processes. Academic independence is not an absolute, but a matter of degree. Researchers are seldom entirely free, even in the most open, liberal and democratic societies, to address critical research into the activities of powerful private and public organisations without experiencing repercussions that impact on funding and career prospects. Academics are generally embedded within institutions that are also very much a part of the interlinked framework of competing and cooperating power structures within a society. The power and ability of academic institutions to secure resources is based, at least to some extent, on compromise and the need to balance their credibility as independent critics of social forces with sufficient restraint so as to avoid disrupting the establishments of power with which they are, to some degree, mutually dependent. Academic institutions therefore have mechanisms to maintain internal discipline over staff to discourage them from engaging in conflicts that are potentially risky or damaging to the institution itself. It is essential to their functioning and survival amongst other powerful, rival institutions that they do so. One should not discount the influence of the political climate in Newfoundland in the wake of the crisis as a factor in freeing up the academic environment, in regard to this sort of political constraint, but neither should one overlook the importance of the significant body of critical research into the fishery and its management that had been produced in the decades prior to the crisis. Perhaps this is indicative of a healthy climate of academic criticism in this period, or of the chronic or recurring state of crisis in the Newfoundland fishery. Much of this research had a social science perspective, and it gained new relevance in the 1990s and has provided an important foundation for understanding the deeply rooted causes of Newfoundland's resource management crisis.

The failure of the fishery and the associated crisis gave strength to alternative views on fisheries management that have raised some challenges to the orthodox paradigm. Fields such as traditional ecological knowledge (see, for example, Neis *et al.* [1999]), and co-management became incorporated into the mainstream language, if not entirely into the practice of fisheries management. Greater consideration was given to previously marginalized issues, for example the role of women in fisheries (see, for example, Neis

[1999]). There has been a greater acknowledgement of the relevance of the social sciences and humanities in fisheries management. Subjects such as history, political science, philosophy and ethics have increasingly asserted their role in the study and management of resources, alongside the traditional disciplines of biology and mathematics. At least they have done so at an academic level, but one cannot assume with confidence that this will lead to meaningful and positive changes to fisheries management in Newfoundland, or elsewhere, unless the underlying management goals, with their preoccupation with narrow economic objectives, are reconsidered.

Thirteen years after the peak of the crisis there have been some notable developments in Newfoundland fisheries and in the fishing communities. The cod fishery has not recovered, but there has been an expansion in other fisheries particularly crab, shrimp and lobster. Unlike the traditional inshore cod fishery that was characterised by ease of entry and widespread participation, these fisheries are restricted by limited entry (lobster, shrimp and groundfish trawl), ITQ based management systems (crab), and the need for capital-intensive industrial technology (shrimp). There are strong pressures toward more extensive use of ITQ in Newfoundland's fisheries with all that this implies for the social and economic structure of the fisheries and Newfoundland's coastal communities. Nevertheless, many of the people of the outports continue to resist being uprooted from their traditional homes and way of life. And in this resistance, they continue with a long established Newfoundland outport tradition.

The legitimacy of the Canadian federal government to manage Newfoundland's resources was damaged by the DFO's role in the fishery collapse. Combined with traditional Newfoundland scepticism, and the rivalries and tensions that exist between the provincial and federal governments, this fosters a climate of distrust that can be expected to undermine the effectiveness of future attempts at conservation.

The ambiguity and multitude of interpretations of the meaning of sustainability gives scope for a diversity of prescriptions but the perennial questions that have dogged Newfoundland's fisheries remain. Cadigan's (2001) question "for whom do the fisheries exist" lies, as it always has, at the heart of the politics of Newfoundland's fisheries and of decisions over how access to the resources should be managed. It also lies at the heart of explanations for the crisis. This question is pertinent to the seemingly inevitable movement toward greater use of ITQ in Newfoundland fisheries and to other policy options. Does this movement reflect a continuity of the sort of policies that favoured vested interests in the past and arguably contributed to the failure of the cod fishery? What are the alternatives? What are

the implications for sustainability? And does sustainability really matter anyway? It is not easy to produce uncontested answers to these questions but they are at least worth exploring. The direction and future of the fisheries and Newfoundland's coastal people continues to depend to a large degree on how they are addressed and lessons learned from the failure of Newfoundland's fishery can contribute to a better understanding of resource management issues elsewhere.

3.1.3 Comparative Studies

An important function of this case study analysis of resource management failure in Newfoundland is to provide insights to inform the analysis of resource management practices in Tasmania in chapter 4. But this is a two-way interaction, and the social and historical context that frames the Newfoundland study was shaped to some extent to facilitate comparative analysis with already published work on Tasmanian fisheries[29].

Phillips, Kriwoken and Hay (2002) have argued that fisheries management policies and practices in Tasmania have developed within a political and resource management culture that has its origins in the history of European settlement, when, particular social, political and economic patterns were established and institutions developed to maintain them. The resulting resource management culture, it is argued, has promoted patterns of resource use that serve rent-seeking interests, entrench inequality and sustain structural characteristics in Tasmanian society that are fundamentally incompatible with sustainability. This chapter explores the extent to which similar structural characteristics, which may be traced to similar roots in the history, colonial culture, and geography of Newfoundland, may be a factor in sustainability dysfunction in Newfoundland's fisheries.

Newfoundland and Tasmania, as has been noted, share a number of features that make them suitable subjects for comparative study. Geographically, they are both islands, situated at relatively high latitudes off the shores of large continental landmasses. Although Tasmania is geographically smaller than Newfoundland their populations are comparable (about 470,000 people for Tasmania, 550,000 for Newfoundland), and the populations of both places are dominated by people of Anglo-Irish origin. The economies of both islands have traditionally been dominated by resource extraction and primary production industries, and both places have suffered from persistently weak economies and lower than average incomes

[29] This material is referred to and some of it is incorporated in the section dealing with the Tasmanian rock lobster fishery in chapter 4.

and relied to a significant degree on subsidies and transfer payments from their respective federal governments. Politically both islands also have much in common. Both are relatively small members of federal systems, and there are many similarities in the structures of the Australian and Canadian federal systems and in the design of the respective institutions of the provincial and state governments within them. This is not surprising as both systems have emerged, without major disruption, from a shared history of British colonial government, and both remain within the British Commonwealth. In the histories of both Newfoundland and Tasmania there were periods of harsh and repressive governance that, arguably, influenced the directions in which their respective societies and resource management cultures and institutions developed, and which have ongoing implications for social, economic and resource sustainability.

The social and historical perspective has been well established in scholarly research into Newfoundland's problems. For example Brox (1972), Alexander (1977), Sinclair (1985), and Cadigan (1999a; 1999b; 2002a) have all made links between Newfoundland's history, its contemporary political, economic and social environments, and developments in the cod fishery that were demonstrably unsustainable for some combination of social, economic, environmental or political reasons. This approach, with its emphasis on a socio-political-economic perspective, was more in vogue 25 to 40 years ago as part of an extensive twentieth century debate over the principal competing ideologies and models for social and economic development. It struggled to sustain relevance in the 1980s and 1990s during the ascendancy of neoliberal (or neo-classical) capitalist ideology. But the debate is regaining salience, and being transformed in the post 2001 world as, worldwide, an intensification of environmental, social, political and economic crises have begun to raise serious new questions about global resource politics; questions to which the neoliberal agenda of the past 25 years appears to offer few convincing solutions.

In addition to comparative studies with Tasmania, reference is also made within the chapter to comparisons with Northern Norway and Iceland. Northern Norway and Iceland are, like Newfoundland, North Atlantic fishery dependent regions. They share a similar climate, flora and fauna, and a similar fishery resource base upon which economic development has historically depended. But Norway and Iceland's social and political history is different to that of Newfoundland and they have pursued a different approach to regional social and economic development. These differences may provide some insight into why these countries have apparently been more successful than Newfoundland at the sustainable management of their fisheries.

An understanding of the many factors that interacted and contributed to the sustainability crisis in the Newfoundland fishery, developed in part with insights gained from comparative studies, should provide the basis for the development of better policies in the future. This provides a positivist, utilitarian justification for such research. Failing this the understanding gained may at least contribute to the ability to recognise ongoing problems and help to explain why it is so difficult to make progress towards sustainability, not only in Newfoundland, but everywhere.

3.2 The Northern Cod Fishery of Newfoundland

Atlantic cod *(Gadus morua)* is the fish most closely identified with Newfoundland. It is a member of the family *Gadidae,* a temperate-water family of fish with several commercially important species including haddock, hake and pollock. Cod inhabit continental shelf and offshore bank areas across the North Atlantic Ocean and the fish has supported important coastal fisheries in Europe, Iceland and the northeastern United States and Canada since pre-medieval times. The Canadian Northern cod fishery, of particular focus in this chapter, refers specifically to stocks that occur in the waters of the continental shelf off the east and northeast coasts of Newfoundland, and off the east coast of Labrador. This large area of ocean is defined by the Northwest Atlantic Fisheries Organisation (NAFO) management areas 2J, 3K and 3L, and frequently referred to as 2J3KL. Cod are also found off the western and southern coasts of Newfoundland in the Gulf of St Lawrence.

3.2.1 A Description of Atlantic Cod

A number of sources provide general descriptions of Atlantic cod and its ecology (see, for example, Innis [1954: 1-10]; Harris [1990: 17-35, 47-49]; Hutchings and Myers [1995: 39-45]; Dobbs [2000]). Atlantic cod are semi-demersal in habit, generally occupying the bottom layers of the water column in depths of between 30 and 250 fathoms, but they sometimes swim near the surface when migrating or in pursuit of food. They are opportunistic feeders on a wide range of prey species. The Northern cod stocks off Newfoundland feed largely on capelin, shrimps and crabs and are, in their turn, taken by various predators including sharks, seals, and larger cod and of course by human fishing activities. Cod stocks are directly affected by fishing impacts and other forms of predation. They are also affected by competition for prey species. Seals, for instance, eat cod but predominantly feed on capelin and shrimp (Stenson, Hammill and Lawson 1997). Harp seals number several million in the waters off Newfoundland and Labrador and consume about 6 per cent of their body weight of fish each day. They may conceivably depress stocks of

capelin and shrimp to the point that food scarcity becomes a limiting factor on cod stock recovery. Commercial fisheries for capelin, shrimp and other species may also reduce the abundance of prey and thus affect cod stocks indirectly (Harris 1990: 27). Juvenile cod may also suffer significant mortality as bycatch, for example, by getting caught in trawl fishing gear being used to target capelin and shrimp. Large, slow maturing fish are particularly vulnerable to intensive trawling effort at levels that may be sustainable for smaller species with a shorter lifecycle. Cod recruitment is also likely to be significantly affected by ecosystem factors that influence both the availability of suitable prey and the level of predation on cod in the egg, early larval and fry stages of their lifecycle. Cod ecology and predator-prey relationships are, therefore, complex, non-linear, poorly understood and hard to predict.

Age and Growth, Maturation, Fecundity

Cod can live more than 26 years and attain a weight of more than 80 kg (Hutchings and Myers 1995: 40). Some suggest they may live as long as 50 years and grow to 180 cm long (Momatiuk and Eastcott 1994). Such large fish are exceedingly rare and commercial catches typically comprise fish of 5-6 years old, which range in size from 1.5 kg to 2.3 kg. Sexual maturity generally occurs in the sixth or seventh year (Hutchings and Myers 1995: 40). Growth rates vary to a significant degree across the cod's range (Harris 1990: 75). Growth is much slower in the north, off the coast of Labrador, than in the southern end of the range. A mature 12 year old fish, for example, may weigh as little as 3lb (1.5kg) off the northern Labrador coast, while a fish of a similar age off the Grand Bank might weigh 13lb (6kg). Growth rates are also dependent on cod population size, which may be linked to greater competition for food at high stock density.

In the winter months cod congregate to spawn on the outer slopes of the continental shelf at depths of 300 to 400 meters with a water temperature of around 3° to 4° Celsius (Hutchings and Myers 1995: 40). Cod have a high fecundity. An average female spawning fish produces between one and two million eggs (Dobbs 2000: 66), and older, larger fish may produce up to ten million eggs. The eggs are approximately 1.5mm in diameter and are buoyant. After spawning they drift with the currents in the plankton community, and take between 10 and 50 days to hatch, depending on the water temperature. On hatching the young fish continue to drift and feed on plankton in the upper levels of the water column. When they reach a size of about 25 to 50mm, they settle to the bottom (Hutchings and Myers 1995: 40).

Because cod produce such a large number of eggs there was thought to be little relationship between the size of the spawning stock and the size of the resulting year class, unless the stock was severely depleted. Large spawning stocks can produce poor recruiting year classes, and small spawning stocks can produce large recruiting year classes (Laevastu and Favorite 1988; Finlayson 1994: 27). There is a wide range of other factors, for example, ocean environmental conditions, that may influence the available food supply for early life-stage juveniles, and so influence survival and recruitment.

The assumption that recruitment and therefore the future productivity of the fishery was not closely linked to the size of the surviving adult spawning population has been a significant factor in the outlook of fisheries managers. It implies a certain degree of resilience in the stock that, in theory, should allow it to be fished down to relatively low levels without affecting recruitment, future productivity, and the long-term viability of the fishery. This assumption, based on a simplistic view of cod ecology, might allow fisheries managers to feel less concerned about the possible consequences of stock decline due to overfishing and may account for the inadequate concern for the risk of overfishing displayed by managers in dealing with the uncertainty inherent in stock assessment methods in the late 1980s. Even a severely overfished stock, should, in theory, be able to recover if fishing pressure is abated. This assumption likely contributed to the managed overfishing of northern cod in the years following 1977. In contrast to the belief that there was no significant correlation between the size of the spawning stock and subsequent recruitment, Harris (1990: 29-35) expressed concern that there was a danger of reproductive failure due to the depletion from overfishing of the spawning biomass. Finlayson (1994: 27-28) discusses this contradiction and suggests that the danger may have been exaggerated by Harris to assist the government to "gain public support for politically risky action by legitimating it in the name of biological necessity." Regardless of motive, the failure of the stock to recover since the moratorium suggests that Harris' view may have been more accurate than the orthodox scientific opinion of the time[30]. Hutchings (1999: 262) with the benefit of hindsight and increased knowledge

[30] This "scientific opinion" had been long held and was firmly established as common knowledge even among English housewives of the mid-nineteenth century. Mrs. Beeton's classic book of household management, first published 1859-61 (Beeton 1994: 123), discusses the natural history of cod with specific reference to its fecundity, noting: "So extensive has been the consumption of this fish, that it is surprising that it has not long ago become extinct; which would certainly have been the case had it not been for its wonderful powers of reproduction". Citing a Dr. Cloquet, Beeton informed her readers that 10,000 vessels of all nations were engaged in the cod fisheries and brought 40,000,000 salted and dried cod into the commercial trade. "If we add to this immense number, the havoc made among the legions of the cod by the larger scaly tribes of the great deep, and take into account the destruction to which the young are exposed by sea-fowls and other inhabitants of the seas, besides the myriads of their eggs destroyed by accident, it becomes a miracle to find that such mighty multitudes of them are still in existence, and ready to continue the exhaustless supply. Yet it ceases to

explains that there was a severe reduction in recruitment (three year old fish) concomitant with a 94 per cent decline in spawning biomass between 1962 and 1977.

Another questionable assumption of the management models was that the Northern cod comprised a single stock. The concept that cod stocks, treated as a single population for management convenience, are actually comprised of discrete subgroups is also becoming more apparent in coastal Norway and in the north eastern United States (Dobbs 2000: 129-130) and has significant management implications as it points to the inapplicability of management models based on a single stock concept. This matter also has important implications for the politics of the fishery. If the fishery is conceived of as a single stock, then the traditional inshore fishers and the offshore industrial fleet are logically understood to be competing over the same resource. Declining inshore stocks can be blamed on overfishing by offshore trawlers. If, on the other hand, inshore and offshore stocks are considered to be completely discrete, then each sector is itself responsible for any decline caused by overfishing of the sub-stock to which it has access. The Northern cod stock in 2J3KL is now thought to be made up of a number of somewhat discrete sub groups with some seepage between them, and in and out of the 2J3KL management unit (Harris 1990: 49). Thus there are grey areas that are open to differing interpretations on this issue that has critical implications for the long prevailing conflict in the fishery between the inshore and the offshore sectors.

Seasonal Migrations

Northern cod off northeastern Newfoundland have been generally understood to follow a seasonal pattern of migration. In late autumn, they gather in spawning concentrations in deep water on the outer edge of the continental shelf and on the slopes of Hamilton Bank, Belle Isle Bank, Funk Island Bank and the Grand Bank[31]. In the spring and summer cod slowly migrate, following prey species, into the gradually warming waters of the offshore banks and the coastal shallows. This summer migration, which generally runs from June to September, traditionally brought the fish into range of Newfoundland's inshore fishery.

There are still vast gaps in knowledge of the factors that influence the patterns of inshore migration (Harris 1990: 49). Differences in ocean temperature and currents have been

excite our wonder when we remember that the female can every year give birth to more than 9,000,000 at a time". Beeton also demonstrates a complacent, anthropocentric view by attributing the "amazing fruitfulness of this fish" as "one more instance of the wise provision which Nature has made for supplying the wants of man".

[31] Harris (1990: 49) also noted that some inshore sub-groups gather in spawning aggregations in deeper channels in inshore waters.

thought to influence the migratory paths of the fish and this has been put forward to explain occasional, localised seasonal failures of the fishery in the past. The "cold water theory" was also put forward to explain the decline of the inshore fishery in the late 1980s, though this has been refuted and more convincing arguments demonstrated that the decline was simply due to stock depletion by overfishing (Hutchings and Myers 1994). An understanding of the existence of at least partially discrete, localised, inshore sub-groups of the Northern cod stock supports arguments that localised fishery failures in the nineteenth century were caused by overfishing. The rapid fall-off of productivity in the Labrador fishery in the 1800s also provides evidence for the vulnerability of Northern cod to overfishing, even with nineteenth century fishing technology (Cadigan and Hutchings 2001), though this view, and corresponding calls for conservation, were often overwhelmed by arguments favouring expansionary interests (Cadigan 1999b; 2002a).

3.3 Early History of Newfoundland and the Northern Cod Fishery

The history of the Newfoundland's Northern cod fishery was based on seasonal, inshore fishing and salt curing the catch from the late 1400s until the 1950s, when factory freezer trawlers began to appear on the offshore grounds (Blackwood 1996: 50). Toussaint-Samat (1987: 318) notes, "of all the fishes, the cod alone has created colonies and founded trading stations and towns". Harris (1990: 17) describes how, near the Strait of Belle Isle, the 20 km stretch of water that separates the Northern Peninsula of Newfoundland from Labrador on the Canadian mainland, "a fortuitous confluence of oceanographic and biological elements conspire to produce a profusion of marine life, fish, flesh, and fowl that promised a seemingly inexhaustible resource for those who could harvest its teeming abundance". This abundance was exploited by Native Americans, who occupied the region around eight thousand years ago, and it was instrumental to the European discovery and settlement of Newfoundland.

The European discovery of these marine resources is subject to some debate. The Vikings occupied sites near L'Anse aux Meadows on the northern tip of Newfoundland's Northern Peninsula a thousand years ago. Toussaint-Samat (1987: 318), a Frenchman, emphasises the discovery of the cod banks of Newfoundland by Basque whalers around the year 1000, (and credits them with setting eyes on North America before Leif Eriksson or Christopher Columbus). There is little doubt that the fisheries of Newfoundland and the Grand Banks were well known to Basque and other European fishers for some time before John Cabot made his voyage of "discovery" in 1497, and initiated British colonial expansion into the New World. When Jacques Cartier "discovered" the Gulf of St Lawrence in 1535, he found

that more than 1000 Basque fishing boats were assembled there (Toussaint-Samat 1987: 319). By the beginning of the sixteenth century the abundance of cod in Newfoundland waters was well known (Harris 1990: 18) and fishing fleets from England, Spain, Portugal and France were soon making regular annual visits. The fishery developed very quickly and Sahrhage and Lundbeck (1992: 91) report estimates of 15,000 European fishers active in Newfoundland in 1518.

Innis (1954) provides a comprehensive account of the history of the cod fisheries from the 1500s until World War II. The events of these five centuries correspond to the modern capitalist system's development and expansion out of Western Europe. This outward-looking quest for new resources, markets and trade came to drive the successive waves of exploration, conquest and colonisation that shaped the world over the next five centuries. Development of the Newfoundland cod fishery was a consequence of this European political, cultural and economic expansion, this sixteenth century "globalisation", and it came to play an important role in sustaining it. Cured codfish became a "currency" as well as a commodity in trans-Atlantic trade. Hard-dried and salted codfish was easily transported and could be kept for several years without perishing. It was a food commodity that leant itself to storage and control, and the ability to control the food supply was a tool in the management of people in the slave/plantation economies that were developing in the New World. Newfoundland cod became an important component of the triangular trade. Slaves were shipped from West Africa to plantations in the New World to produce sugar, cotton, indigo, molasses and other tropical products. These commodities supported the development of processing industries in Europe and the enormous amounts of profit and capital accumulated from these activities in the eighteenth century funded the industrial revolution (Leftwich 1983: 144).

A seasonal fishery became securely established during the sixteenth and seventeenth centuries. The European fleets would typically cross the Atlantic Ocean in the spring, fish and cure the catch during the summer months, and return to Europe in the late autumn. The seasonal nature of the fishery was dictated by a number of factors. Most critically, the migratory behaviour of the fish meant that they became more accessible to the simpler fishing technology of the day, during the summer inshore migration. In addition, the preferred method of curing the catch, the lightly salted, hard dried cure, could best be prepared during the relatively benign weather of the short Newfoundland summer.

Fishers from the different nations who engaged in the Newfoundland fishery employed different methods to preserve the fish (Harris 1990: 18). The French, Portuguese and

Spanish typically gutted the fish, salted it heavily, and simply packed it in the holds. Cod salted on board the fishing vessel in this way is referred to as "salt bulk" and known in French as *morue verte*, which translates as "green cod". It can be preserved for some time to allow transatlantic shipping, and later reprocessed by scrubbing, filleting, removal of the skin and bones, and then may be prepared for consumption or resalted or dried (Toussaint-Samat 1987: 321).

The English developed the lightly salted, hard-dried cure that became known as the Newfoundland "shore cure" (Harris 1990: 18). Felt and Locke (1995: 205) explain that the fish were split, lightly salted, and dried in the sun and strong prevailing winds of the summer season. Several weeks might be required to dry the fillets sufficiently, and the process was labour intensive. The fillets needed constant attention, regular turning and protection from rain. Once the processing was completed, the hard-dried, shore-cured fish had the advantage of a long storage life and could be kept for 10 to 12 years. It contains about 14% water and 79% protein. *Morue verte* or salted cod, by comparison, contains about 39% water and 38% protein (Toussaint-Samat 1987: 324). The shore-cured fish was therefore a more concentrated and valuable product than *morue verte.*

The differing climates of England and continental Europe influenced the choice of cure adopted by fishers from these countries and also influenced the areas they fished. The warmer, drier climates of France and Portugal enabled solar salt to be produced there. Salt was essential to the fishery, and commercial interests in fishing went hand in hand with commercial interests in the salt necessary for the preservation of the fish (Toussaint-Samat 1987: 322). The whole trade was a complex economic network linking nations in alliances or competition involving the fisheries, salt, transport, taxes and the control of ports. In the middle ages England had to import salt from France, and the English preference for the lightly salted "shore cure" was influenced by the desire to economise on the use of salt (Innis 1954: 50-51; Harris 1990: 18). Consequently English fishers concentrated their activities off the north east coast of Newfoundland where the fish tended to be smaller and were a more suitable size for the lightly salted, hard dried shore cure than those off the banks to the south of the island (Innis 1954: 10).

The labour intensive English cure required on-shore facilities or "stages" where drying racks or "flakes" could be erected. Thus, while the continental fleets were more self-contained, ship-based fisheries, the English fishery came to depend on access to suitable sites for shore based processing. The flakes, and other onshore infrastructure also needed to be guarded and maintained over the winter season. This, Harris suggests (1990: 18), explains why the

Newfoundland coast was primarily settled by fishers from Britain rather than from other European nations (see also, Innis [1954: 30-94]), though other political considerations, to be discussed further, were also significant determinants of settlement.

Conflicts between England and France over fishing grounds, ports and suitable sites for onshore processing, were frequent prior to the eighteenth century (Innis 1954; Sahrhage and Lundbeck 1992: 92-93). The Portuguese had been excluded from the fishery by about 1600 and had, henceforth, relied on cod imported by British vessels, which was exchanged for olive oil, wine and salt. The English crown had claimed Newfoundland in 1583 but it was not until 1713, in the Treaty of Utrecht, that France gave up its claims, but was granted rights to process fish on the shore in north-west Newfoundland. This area came to be known as the "French shore". In 1783, at the Treaty of Versailles, the boundaries of the French shore were altered (Sinclair 1985: 9). Britain reclaimed the northeastern section, and the French rights were extended to include the entire western shore of Newfoundland. From 1783 till 1904 when French rights were finally eliminated, the French shore extended from Cape St. John to Cape Ray. These treaty rights had a significant influence on the history of settlement in western Newfoundland. Under the terms of the treaty, the French could fish and process the catch on the French shore without interference, but they were prohibited from establishing any permanent building or settlement. British and Newfoundland fishers were also discouraged from settling on the French Shore to reduce the potential for conflict (Sinclair 1985: 9).

In addition to political factors, the pattern of settlement of Newfoundland was influenced by access to other resources of use in the fishery. These included sheltered harbours, fresh water, and timber for fuel and for the construction of drying flakes, but of prime consideration was access to the fish themselves.

> *Locations for settlement were those at which a precise combination of geographic, oceanographic, and biological elements came together, the essential conditions being the interaction of winds, tides, and currents, operating to keep plankton rich waters sufficient to attract concentrations of feeding fish within reasonable distance (given primitive technology) of an adequate haven with sufficient foreshore and a supply of fresh water. Look at the early and ultimately most successful settlements and we will see that they do not represent the best or most accessible supply of arable land or of fresh water; rather they frequently offer only the barest modicum of shelter from the seas, only a modicum of passably good land, only the least amount of fresh water necessary to survival. What they have in common is easy accessibility, at a time before the invention of the internal combustion engine, to good fishing grounds (Harris 1990: 19).*

Fishing stations were established close to these productive fishing grounds in spite of difficulties relating to the shortage or lack of other resources. In some places, for example, the absence of suitable harbours meant that fishing boats had to be raised and lowered from cliffs, and in places without beaches, drying flakes were sometimes precariously constructed on the sides of cliffs to which the fish had to be thrown up out of the boats. Principally for these reasons, the settlement pattern of Newfoundland came to be characterised by:

> *A relatively small population, thinly scattered in more than one thousand communities along ten thousand miles of coastline, often in locations most difficult of access involving astronomical per unit cost for basic infrastructural services like roads, harbours, electricity, water, sewage, schools, and hospitals; and, all dependent upon a single seasonal resource that fluctuated in availability in tune with environmental fluctuations that were neither understood nor controllable (Harris 1990: 20).*

Newfoundland's historic and cultural identity was built upon the traditions of this inshore fishery with its many scattered settlements isolated in a harsh North Atlantic environment, and a predominant theme of that history, and one that continues to pervade the folklore of the province to this day, concerns the political restrictions on the economic development of the coastal populations that maintained them in conditions of disempowerment, dependency and exploitation.

3.3.1 Political Restrictions and Exploitation in the Newfoundland Cod Fishery: An Historical Precedent

Brox describes how for almost the first three hundred years after the European rediscovery of Newfoundland:

> *[t]he English West Country merchants controlled the fishery and all other resource exploitation there, either directly, through their officers, or indirectly, through their parliament, administration and armed forces. Settlement of Newfoundland was actively discouraged in order to cut off alternatives to service on the ships. The history of recruitment to the British fleet in this period, and later, is largely one of press gangs. It is not surprising that many crewmen jumped ship, hid in the dense forest, and lived off the land and sea... As late as 1811, it was illegal to erect a building of any sort anywhere in Newfoundland without explicit permission from the governor. Women were not allowed on the island, and schemes were developed to remove those who were already there. Military commanders were ordered to seek out settlers, burn houses and root out population (1972: 1).*

Brox suggests that these political restrictions on settlement contributed to the highly dispersed settlement pattern of coastal Newfoundland as settlers sought inaccessible

harbours and hideaways in which to settle, where they might escape detection and harassment from the British Navy. Harris (1990: 18) gives less credence to this as an influence on the pattern of settlement and suggests that the restrictions may have been "more honoured in the breach than in the observance", particularly during the Seven Years War (1756-1763) and Napoleonic War (1792-1815), when the resident population grew in response to a combination of the increased market demand for cod, and the impact of the hazards of war that served to discouraged fishers from making the seasonal return trip to Europe.

One should not, however, underestimate the effect and intent of the laws of prohibition on settlement merely because they were not always enforced. Laws such as these convey much power from the discretionary manner in which they may be applied. When, by an arbitrary "application of the rule of law", established authority has the power to burn people's homes and displace them in a hostile and unsettled environment, their existence becomes entirely dependent on maintaining the patronage and good will of that authority. This entrenches relationships of power, patronage and dependency and renders people vulnerable to exploitation. The effect of the entrenchment of such a culture of powerlessness, patronage, dependency and exploitation on the population of Newfoundland, and on their collective psyche, can be expected to have had a significant effect in shaping Newfoundland's social and political character, an issue of perhaps greater importance than its effects on the physical pattern of settlement.[32]

3.3.2 The Rule of English Mercantile Interests

Newfoundland's society and economy, from the sixteenth century until recent times, was dependent on shipping. The salt-cod economy depended on imports of large quantities of salt, and also on the export of cured fish to overseas markets. Settlers in Newfoundland also depended on shipping to supply many basic necessities. Agriculture and animal husbandry are limited by poor soils and an unfavourable climate making it difficult to produce many European staples in Newfoundland. Flour, molasses, rum, salt-cured beef and pork, and other commodities were all imported. This allied with the dependence of the export cod economy on shipping, ensured that control over shipping, assisted by complementary laws

[32] Hay (1977) has described how an environment of intense social insecurity associated with the shame of association with convict ancestry contributed to a preoccupation with respectability that served to entrench conservative political forces in Tasmania from the mid nineteenth century until well into the twentieth.

and regulations, would provide the means to exercise power over society and the resources of Newfoundland until well into the twentieth century[33].

During the sixteenth and seventeenth centuries the English West Country merchants and ship owners had gained control of the fishery. With the assistance of the British government and navy, the economic and social development of Newfoundland was directed in accordance with their interests. Support for British mercantile interests in the cod fishery was seen to be complementary to the development of a strong British Navy. The dominance of the English merchants also extended to control over markets. They had, for example, towards the end of the seventeenth century, entrenched a monopoly over the cod trade in Portugal (Abreu-Ferreira 1995: ii). The power of the English ship-owner merchants at this time, in global shipping terms, was substantial. In 1713, when they secured control over the Newfoundland fishery, they also obtained the *asiento,* which granted them the sole right to supply slaves to the Spanish colonies. For the rest of the eighteenth century the profits from this trade, with which the cod trade was integrated, were to be enormous (Leftwich 1983: 144-145).

The migrant fishery controlled by the English West Country merchants persisted for nearly two hundred years. As late as 1683-84 there were only about 120 permanent residents on the island. During the eighteenth century the population increased substantially, numbering 3,400 in 1754, 12,000 in 1774, and 20,000 in 1804 (Authors unknown *[Encyclopaedia Britannica]* 1965). During the Napoleonic wars, European fishing activity was curtailed, and Newfoundland cod enjoyed a monopoly in Mediterranean markets leading to high prices and an economic boom in the fishery. Following the end of hostilities there was a brief depression in the trade, but it recovered and enjoyed a long period of stability (Authors unknown *[Encyclopaedia Britannica]* 1965: 336). The nineteenth century was a time of general prosperity and economic growth for Newfoundland. The population continued to grow reaching about 124,000 in 1857, 146,000 in 1869 and 161,000 in 1874. The bulk of these immigrants were from Ireland and their numbers contributed to the growth of the inshore fishery. While offshore fishing took place on the Grand Bank it was prosecuted by larger ocean going vessels based in the ports of the Maritime Provinces, New England and Europe. Newfoundland fishers remained, for the most part, tied to the sixteenth century traditions of the inshore fishery.

[33] Innis (1954) provides a detailed and extensive examination of this within his study of the history of the cod fisheries.

Other economic developments, including a lucrative seal fishery, contributed to Newfoundland's prosperity during the middle of the nineteenth century. Attempts were made to develop agriculture and so add a greater degree of diversity and self-sufficiency to the island's economy, but the difficulties of climate and geology were always a limiting factor on the economic viability of agriculture in Newfoundland. The cod fishery remained the single industry in which Newfoundland enjoyed some natural advantage and upon which the economy remained largely dependent.

3.3.3 The Reign of the St John's Merchants

The political and economic domination of Newfoundland by English merchants and ship owners was diminished by the early 1800s as the restrictions on settlement fell away and the resident population grew. The new force that emerged to dominate Newfoundland's political and economic life was again a mercantile class, but now it was based in St John's rather than in the port cities of England's Western Counties. Institutions of representative government were established in Newfoundland in 1832 in the form of a bicameral parliamentary system. The upper house was controlled by the St John's saltfish merchants. The lower house was more widely representative but the discord that rapidly developed between them made the system dysfunctional, leading to a suspension of the constitution and amalgamation of the two houses. In 1855, full legislative responsibility was granted to Newfoundland (Authors unknown *[Encyclopaedia Britannica]* 1965: 28).

Though numerous, the fishermen of the outports were politically unrepresented on any effective level. A dual society was maintained, with political and economic power concentrated with the merchant class in St John's, while the scattered outport communities remained backward, and economically dependent on the merchants and their agents. In the outports the merchants often remained monopoly providers of credit, monopoly suppliers of essential staples such as flour and molasses, and monopoly buyers of the salted cod that the fishermen produced.

The outport economy was based on the widely criticised "truck" system, which entrenched feudal relationships of dependency and patronage in the outports. Merchants (or their agents) extended credit to enable fishermen to buy winter supplies, and payment was made when cod were delivered in the summer and autumn. Cash was seldom exchanged. If fishermen had a good season, positive balances were carried as credit on the books. The system was subject to abuse. In addition to monopoly power, the merchants kept the books and illiteracy was widespread in the outports.

Under the long domination of the English merchants, little of the wealth from the cod fishery remained in Newfoundland. The English merchants had no interest in fostering the diversification of the Newfoundland economy away from fisheries, and had opposed capital investment in the construction of transport infrastructure and agricultural development. With responsible government in 1855 and the ascendancy of local St John's merchants, this trend continued as local merchants remained preoccupied with fishery interests (Innis 1954: 387-389; Summers 1994: 32-59).

This changed in the 1870s and 1880s. These were economic boom times for Newfoundland. Cod prices were high and investment in infrastructure stimulated the economy. During this investment boom there was a tendency of government to look to economic diversification (McBride, Kealey and Cadigan 2002; Ommer 2002). Railways were built to open up the interior for mining, and with unrealistic optimism, for agriculture (Cadigan 2002b: 244). At first this investment in economic diversification was based on Newfoundland capital. This situation was to change dramatically in the 1890s when, following a fire in St John's that triggered an economic crisis, infrastructure and economic development became dominated by foreign, direct investment.

3.3.4 Economic Dependency Entrenched

In 1892 fire destroyed three quarters of the city of St John's. Damage to property was estimated at $20,000,000, of which only a quarter was covered by insurance (Authors unknown *[Encyclopaedia Britannica]* 1965: 337). Following this disaster, Newfoundland's two leading banks failed, and in order to stave off complete collapse of the financial system, the government sought loans in Montreal, New York and London. Canadian banks entered Newfoundland. Their currency replaced the Newfoundland dollar, and the business life of Newfoundland became increasingly dominated by foreign investment attracted by the opportunity to exploit the island's natural resources. The government's weakness and dependency on foreign financiers was such that some questionable transactions occurred. For example, in 1899 virtually all of the island's communications systems, including the railways, shipping lines and the telegraph, as well as extensive timber and mineral concessions, were transferred to Sir Robert Reid, a railway promoter. The monopolistic features of this unusual contract raised concerns and it was subsequently renegotiated, but the incident is reflective of the nature of politics and business of this period, which was to extend through the first thirty years of the twentieth century (Authors unknown *[Encyclopaedia Britannica]* 1965: 337).

Newfoundland had rejected federation with Canada in 1869. After 1869 the Newfoundland government ignored the most important economic sector, the fishery, in favour of economic diversification based on foreign direct investment (McBride, Kealey and Cadigan 2002). Economic dependence was entrenched. Projects based on foreign investment often failed to produce hoped-for economic benefits, while the neglected fishery stagnated and failed to maintain an advantageous competitive position with respect to other cod producing countries such as Iceland and Norway. But why was development of the fishery neglected? The lack of any challenge to the political domination of the merchants is the likely answer. Their interests were served by the existing economic relations in the fishery, which, though backward and almost feudal in character, were sufficiently profitable to be maintained. The lack of alternative economic opportunities for outport people, for example through development of commercial agriculture or industry in the outports, meant that there was no development of countervailing economic interests to challenge those of the merchants. There were no competitive pressures to stimulate investment in the fishery, for example, by building large, seaworthy vessels that could challenge the dominance of American and European fleets in the Grand Bank fishery.

3.3.5 Economic Depression and Failure of the Newfoundland Government

The Newfoundland economy had been sustained by imported capital from the 1890s to the 1920s and the great depression brought on severe economic, political and social problems. The inflow of capital investment ceased. Demand fell for Newfoundland's exports. The market for salt cod plummeted causing poverty in the fishing communities and the Newfoundland government could neither service its debts nor adequately relieve the poverty and hunger of the people. By 1933, in light of the incapacity of the Newfoundland government to manage the crisis, a Royal Commission was appointed to inquire into Newfoundland affairs, its financial situation and its prospects. The Commission was made up of members from Newfoundland, Canada and the United Kingdom. Its report released in autumn of 1933 contained a severe indictment of Newfoundland's system of government, finding that the problems of the dominion were largely a consequence of "a perverted parliamentary system which had been exploited for party and personal gain" (Authors unknown *[Encyclopaedia Britannica]* 1965: 337).

Poverty was the underlying cause of the political crisis, and mismanagement of the fishery, so important in the Newfoundland economy, was a significant cause of the poverty. The

Royal Commission's criticism focused particular attention on the fisheries, as noted by Alexander:

> *Not always fairly, it argued that the country had squandered precious resources over the years, borrowed recklessly on precarious prospects, was riddled with political corruption and patronage, and was administered by a public service that was slovenly and incompetent. The hardest blows, however, were reserved for the commercial elite – the "fishocracy" of Water Street in St John's – which had failed to organise through cooperation a national fishing industry which would be internationally competitive in the technology of catching, processing and marketing (1977: 2).*

The Commission's most imposing recommendation was for the suspension of responsible government in Newfoundland and the appointment of a unique body, a Commission of Government, to carry out the legislative and executive functions. The Royal Commission also recommended that the United Kingdom should assist Newfoundland financially until it could become self-supporting. In response to the findings of the Royal Commission, representative self-government was suspended and a special Commission of Government was established in February 1934, made up of six appointed members, three from Newfoundland, and three from the United Kingdom. Overton (2005) provides analysis of the dominance of commercialism as a factor in the failure of the Newfoundland state and the voluntary abandonment of democracy and responsible government in Newfoundland at this time.

3.3.6 Commission of Government, World War II, and Union with Canada

In the years leading up to World War II, the Commission of Government's record on rehabilitation and reform was impressive. Expenditure on health and education were substantially increased. The Commission established a fisheries board to improve the standards of production and marketing in the fishing industry, and shipping and railway transport systems on the island were improved. This was financed in large part by substantially increased revenues that were achieved after the Commission simplified and reduced customs duties, which encouraged imports and led to increased trade (Authors unknown *[Encyclopaedia Britannica]* 1965).

The Commission of Government continued with its role through World War II and until the confederation of Newfoundland with Canada in 1949. During the war the island was of strategic importance due to its location on the Atlantic air and sea routes. Large contingents of Canadian and American troops occupied key installations such as Gander airport and the port of St John's, and several large military bases were established on the island. The war

brought prosperity to Newfoundland. Labour was in demand and high wages were available in construction and other industries. The economy also benefited from the high, wartime demand for dried cod and other commodities from Newfoundland's mines and forests. At the end of the war the Commission of Government had built up a substantial economic surplus.

Following World War II, the question of Newfoundland's constitutional status was addressed. Several possibilities were considered, including continuation with the Commission of Government, the restoration of representative government - which would have made Newfoundland an independent state - and confederation with Canada. Overton (2005: 47) notes that significant opposition to confederation came from the Newfoundland elite who viewed the nation as "their estate, their patrimony, their project. The people were their subordinates, necessary for the creation of wealth, but by no means to be thought of as citizens or as having an equal stake in the affairs of state". In rejecting self-determination in favour of confederation "the Newfoundland people demonstrated that they would rather join Canada than risk seeing their country handed back to the control of the merchant and professional elite which had controlled politics in 1933" (Overton 2005: 48). After a lengthy process, which included two controversial plebiscites, confederation with Canada was adopted, and on April 1, 1949 Newfoundland assumed provincial status within the Canadian federation. Its constitution was restored, with a single-chamber provincial legislature. With confederation the modern era in Newfoundland's history began.

3.3.7 The Smallwood Era and Industrialisation

The first premier of the new Canadian province of Newfoundland (and Labrador) was Joe R. Smallwood and his government was to hold power until 1972. Smallwood had been a strong advocate of confederation and he promoted an industrial vision for the economic development of Newfoundland. For 450 years the history of the Northern cod fishery, so central to the history of Newfoundland itself, had been based on the inshore fishery. There had been some changes in the fishery over this time. The adoption of seines in the 1840s and the introduction of the cod trap in the 1870s represented a degree of technological and capital intensification, but the general character of the fishery was not greatly changed. It continued to be based on small, mostly oar-powered boats, operated from numerous, isolated coastal settlements, with an emphasis on seasonal activity and a mode of production centred on the household economy.

Smallwood's vision for the future of Newfoundland was based on models of development through industrialisation[34]. At first he neglected the fisheries, believing that Newfoundland's future prosperity rested on development of the island's interior (Felt and Locke 1995: 208). The inshore fishery, with its traditional, labour-intensive methods for catching and curing fish was disparaged as backward. Development of the outport communities was neglected as Smallwood's government encouraged the abandonment of many isolated coastal settlements and sought to concentrate population and labour in larger centres in order to support the industrialisation of the economy[35]. Over 300 communities were abandoned altogether and the population engaged in fishing declined from 40,000 to 10,000 between 1951 and 1966 (Felt and Locke 1995: 208). The neglect of fisheries development in Newfoundland allowed foreign trawler fleets to expand their fishing effort to dominate the Northern cod fishery in the 1960s.

In line with its industrial vision, when the Smallwood government turned its attention to fisheries it favoured the expansion of industrial fishing based on capital-intensive factory freezer trawlers linked with modern centralised onshore processing facilities. The tension between government policies in favour of industrialisation and centralisation, and the preference of outport fishers to retain their communities and traditional rights of access to the fishery was, from that time on, to be a central issue in the politics of Newfoundland's fisheries. This tension, and the way that its political, economic and social consequences shaped developments in the fishery, was also to be a significant underlying cause of ongoing crisis and dysfunction in the Newfoundland fisheries leading to the collapse in 1992.

3.4 Ongoing Development of Social, Economic and Political Dysfunction – the Root Causes of Resource Failure

Wright (1997; 2001) argues that the Commission of Government paved the way for a transition from the traditional hegemony in the Newfoundland fishery - exercised by a government dominated by mercantile interests - to a new hegemony exercised by a government allied to the frozen fish corporations. Partners in this hegemony adhered to the dominant Western paradigm - that the only path to prosperity lay in the development of an

[34] Wright notes that Smallwood, during the Commission of Government period, had some reservations about the social effects of industrialisation of the fishery and the "transformation from 'petty capitalist' production to a 'fishery proletariat'. Smallwood argued that national 'traits' he associated with independent fishing, such as individualism and adventurousness, would be lost" (2001: 34-35). Smallwood's conversion to the 'industrial hegemony' came after confederation.

[35] In the middle of the twentieth century the bulk of the population still lived in 1300 small settlements, with less than 500 inhabitants, scattered around Newfoundland's 6000 miles of coastline.

industrial capital economy. The traditions of the inshore fishery had no place within this vision. Government financial and policy support favoured development of the industrial sector. The concerns of the inshore fishery were ignored and its development neglected. Government financial assistance was instrumental in creating overcapacity in processing plants and trawlers in the industrial sector, and the dependency of the industry on government financial assistance, all of which contributed to an unstoppable momentum that led to the crisis in the 1990s. Blackwood (1996) argues that the inshore fishery was in competition with the industrial offshore sector for fishery resources as well as for government financial and policy support. He maintains that the setting of unreasonably high TACs was a mechanism that favoured the offshore sector in resource allocation. Alexander (1977) describes how policy neglect contributed to decline of the Newfoundland saltfish trade (which was closely associated with the inshore fishery) in spite of continued demand in world markets for traditional "shore cured cod", a product in which Newfoundland enjoyed advantages of climate and tradition. Brox (1972) described the widening gap and entrenchment of economic dualism in the Newfoundland fishery between the inshore and the corporate, offshore sectors in the 1960s. He explained how government policies worked to reinforce dualism, and contrasted the situation in Newfoundland with conditions in Norway and Iceland where fisheries development had been more inclusive of the coastal communities. Brox noted how economic dualism sustained a tension within the political structures of Newfoundland society that encouraged the generation of contradictory policies. Sinclair (1985) examines conditions in the fishery at the beginning of the 1980s and found symptoms of serious dysfunction. There was an atmosphere of confrontation rather than cooperation within the production chain in the fishery leading to resource waste and economically unproductive practices. Ambiguous and contradictory policies from the federal and provincial governments exacerbated the problems. Finlayson (1994) analyses how the politics of the fishery influenced the managing agency, the DFO, and caused dysfunction of its scientific processes, contributing to the failure to properly manage fishing effort in the lead-up to the 1992 stock collapse. The work of these researchers will be examined in greater detail in the following section of the chapter, after a brief discussion of the work of Cadigan (1999a; 1999b; 2001; 2002a) which demonstrates a nineteenth century precedent for many of the social, political and ecological features of the present crisis. The argument developed here lends support to the thesis that recurring problems of dysfunctional resource management in Newfoundland can be linked to persistent, dysfunctional, structural characteristics in Newfoundland's social and political framework, and that this has been the cause of recurring political, economic and fishery resource crises in Newfoundland from the mid 1800s to the present time.

3.4.1 Nineteenth Century Precedents for the Crisis of the 1990s

Cadigan (1999a; 1999b; 2002a) discusses the failure in the nineteenth century of Newfoundland society to develop fisheries regulation that would promote the common interest values of conservation and equity, and so sustain the wellbeing of the island's people that depended on the "moral economy" of the fishery commons. This failure was attributed to the over-riding strength of narrower interests served by capitalist expansion, and the dominance of these interests in Newfoundland politics.

Cadigan (1999a; 1999b) and Cadigan and Hutchings (2001), demonstrate that overfishing linked to the expansionary use of ever more powerful and destructive fishing technologies was a focal issue for conflict in the 1800s just as it was later to become in the 1900s. Cadigan (1999b; 2002a) also describes social, ecological, and political concerns that characterised the debate over conservation and restrictions on fishing technology in the nineteenth century that are in many ways similar to the debate associated with the crisis in the twentieth. Seines, jiggers and bultows were the threatening capital-intensive technologies in the 1840s, draggers and factory freezer trawlers in the more recent crisis, but the underlying socio-economic issues were essentially the same.

Overfishing and Stock Collapse in the Nineteenth Century

As noted, Newfoundland's coastal population expanded rapidly following the removal of restrictions on settlement in 1811. The increasing population depended almost entirely on fishing and placed increasing pressure on the inshore cod stocks. Cadigan (1999a; 1999b) and Cadigan and Hutchings (2001) argue that this increased fishing pressure may have brought about the collapse of some localised inshore sub groups of the Northern cod stock. They drew upon the records of William Kelson, a merchant's agent based in Trinity Bay, who recorded conditions from 1815 to 1852, and noted the almost complete failure of the fishery in Trinity Bay in some years from the 1840s. Records for total cod exports from Newfoundland during this period indicated declining catches in some years in spite of the presumed increase in effective fishing effort through population increase and the adoption of more powerful technologies.

Pressure to Adopt More Powerful, Capital Intensive Technology

Cadigan (1999a; 1999b; 2002a) argues that the effort to maintain harvests from the fishery in spite of depleted inshore stocks generated increasing pressure towards the adoption of more powerful and capital-intensive fishing technologies. There was a trend towards the use of seines and long-lines (often referred to in Newfoundland as "trawls" or "bultows") in place

of the traditional baited hand-lines, and also to expand the fishery to exploit fishing grounds further offshore as inshore stocks were depleted. Many small-scale fishers resisted this trend and opposed fishing methods and equipment, which they recognised as posing a threat to social equity and the ecological health of the fishery. This generated increasing conflict, and a debate led by Kelson[36], was carried on in the Newfoundland press during the 1840s and is discussed by Cadigan (1999a; 1999b).

Seines, it was argued, caught juvenile as well as mature fish, and fish with flesh that was in poor condition and which did not cure well. In addition, their use was thought to drive fish out of the bays. There were also concerns about the use of jiggers (unbaited lures operated on hand-lines) that often injured fish but failed to catch them. It was argued that the damage done by these technologies outweighed the advantages of the short-term increase in catch that they made possible. In addition to conservation concerns, the controversy with new technologies was also driven by underlying issues of equity and "was a reaction against technologies that allowed those with more property than others to garner more of an increasingly scarce, poorly understood resource for themselves to the detriment of most outport people" (Cadigan 1999a: 36). The capital cost of seines put them out of the reach of all but the wealthy, and their use, by depleting and driving away the fish, ruined the prospects for the poor to take fish by the traditional handline methods and "the increasing poverty of outport people could be traced to the use of such gears" (Cadigan 1999a: 34)[37].

Government Response to the Conflict

Resistance to the new technologies was widespread. Some fishing communities excluded seines by informal agreement, and in some places they destroyed bultows and nets in an expression of informal, and illegal, community opposition to their use. Government tended to protect the interests of "private property" when communities took such action (Cadigan 1999b: 162-163). There was a political campaign in 1849 supported by a petition from Trinity and Bonavista Bays to gain legislative support to restrict the use of seines, jiggers and trawls. An enquiry was held but "most of the magistrates", it was claimed, "always sided with the interests of the wealthy, and explicitly favoured the use of cod seines. These magistrates would determine who they took evidence from, and would not listen to Kelson's supporters" (cited in Cadigan [1999a: 34]). Rather than respond to popular calls for

[36] As a merchant's agent, Kelson's championing of the cause of the fishers and his genuine concern for the wellbeing of the fishing people of his community sets him at odds with the image of the merchant as proponent of expansionary capitalist exploitation of the fishery and coastal people that is widely portrayed in Newfoundland folklore.

[37] Referring to the seines and bultows, not handlines.

conservation, the Newfoundland government demonstrated a commitment to technological expansion (Cadigan 1999a: 37). Meanwhile, Cadigan noted:

> *Fishing people's moral economic regulation of access to the cod fisheries experienced a downward spiral of popular protest against, and then resignation to, marine-resource degradation. Such resignation was not simply the inevitable outcome of European settlement, but rather of the capitalist organisation of fish marketing and the development goals of the colonial state (1999a: 41).*

The campaigns against seines, jiggers, gill nets and bultows continued and in 1863, in response to growing demands for conservation, the government tentatively introduced legislation for the restriction of certain gear types (Cadigan 1999b). But while there was widespread agreement that the new technologies were damaging to the fisheries, the law failed to pass.

> *Opposition to the bill made it clear that the fishing industry had come to rely on the increased use of newer, more intensive fishing gears to stimulate short-term recoveries in fish catches. Such dependence divided fishing communities into those who could afford the new gear and those who could not. Such circumstances made it extremely unlikely that the government could use new laws to manage the industry and conserve fish stocks with unanimous public support (Cadigan 1999b: 160).*

The various gear available and differing local circumstances throughout the Newfoundland fishery made it unlikely that a single set of regulations would be effective in regulating fisheries across the entire island. The novel proposal that fishing communities should be supported by the government to regulate fishing in their local waters, according to local circumstances, was quickly dismissed in 1866 (Cadigan 1999b: 161) by a legislative assembly that, as has been noted, was dominated by the St John's merchants. Their interests would not have been favoured by restrictions on the use of capital-intensive technologies.

The debate in favour of gear restrictions and the rights of communities to self regulate their local fisheries occasionally resurfaced, but it ran counter to a prevailing tide in the press and government that, after the failure to pass legislation in 1863, had become overtly disparaging of conservation concerns that were linked to the call for gear restriction, and which instead favoured capitalist expansionism and open-access supported by arguments of the inexhaustibility of the fisheries (Cadigan 1999b: 162).

The official response in the 1860s could be described as a pretence of receptivity to the petitions and widespread popular opposition to the new technologies, but no meaningful action was taken by the Newfoundland government to support them[38]. Cadigan explains that justification for open-access to the new technologies was supported in the 1860s by the release of a report by a British Royal Commission into sea fisheries that:

> *denied that there was a problem with declining fish stocks in the North Atlantic because of overfishing. Charging that ordinary fishing people did not have the scientific training to ascertain whether stocks were healthy or not, the commission argued that fish were actually increasing (Cadigan 1999b: 162).*

The report dismissed the need for conservation by professing that "no amount of effort could diminish ocean species", and that the adoption of new technologies made it possible to land larger catches and made the fisheries more productive (Cadigan 1999b: 162). Thus, it dismissed concerns about overfishing and calls for restraint on fishing technology. In a similar way, and as will be discussed in more depth, the concerns about overfishing, stock decline and unsustainability voiced by the inshore sector in the late 1980s were dismissed as nonsense by government resource management agencies that attacked the "scientific" qualifications of those who challenged government policies. These policies, which favoured industrial expansion, rested on what turned out to be erroneous assurances of sustainability that were provided by "government science" (Finlayson 1994: 101-127).

Offshore Expansion

Cadigan and Hutchings (2001) argue that the decline in landings from the depleted inshore fishery was a stimulus for expansion and intensification of the Newfoundland fishery up the coast of Labrador from the 1860s, and later, as the Labrador fishery began to decline, into the waters of the Grand Bank. They and Cadigan (2002a) argue that the "need" to find new fishing grounds resulted from the successive over-exploitation of older fishing areas. On the Grand Bank Newfoundland fishers faced competition with established French and American fleets, and concern was expressed about the effect of "foreign overfishing" on the offshore banks, which was claimed to be a cause of the decline in the inshore fisheries (Cadigan and Hutchings 2001: 42-43). Again this is a precedent for similar arguments levelled against "foreign fishing" and trawling on the banks by offshore "draggers" that were voiced repeatedly in the latter part of the twentieth century leading up to the crisis of the 1990s.

[38] This is reflective of the way narrow sectoral interests frequently predominate over the interests of the majority for reasons well explained by Olson's (1965; 1982) general theories of collective action.

Discussion - Relevance of the Nineteenth Century Crisis to the Present

In recent years there has been a tendency to view the 1990s cod crisis as largely a consequence of the post World War II industrialisation and intensification of the fishery. This perspective provides leverage for various interests engaged in ongoing conflict over resource access. Clearly the small-scale inshore sector has gained, if only in matters of public opinion, from a portrayal of a history spanning several centuries of ecologically sustainable production from the traditional fishery, until the expansion of offshore industrial trawling in the latter part of the twentieth century brought on the present crisis. While not wishing to dismiss this argument, which has some substance and is an important theme in the debate, Cadigan's work demonstrates that there were historical precedents, from 1815 onwards, for many of the issues that were argued in relation to the 1990s crisis in the fishery, with technology as a focal point of conflict. The seines and long-lines that were regarded as the threatening new technologies of the mid 1800s, and the next stage in technological development, the cod trap, which appeared in the 1870s, had become the traditional mode of fishing post World War II. The offshore trawlers and smaller middle distance draggers were the new villains. But, while the technology evolved, the political and economic nature of the conflict remained essentially unchanged.

The historical perspective also provides insight into the biological productive capacity of the fishery. Harris (1990: 1, 26) suggested that the fairly consistent annual harvest in the region of 250 000 tonnes for over a hundred years from the mid 1800s to the mid 1900s, indicates that the traditional inshore fishery was sustainable at this level over this period. Cadigan and Hutching's (2001) work is interesting in light of this because they argue that these landings were only maintained by a continual increase in the effective fishing effort due to population increase and technological advances, and the territorial expansion of the fishery, offshore and up the Labrador coast, as inshore waters were depleted. Cadigan (1999a; 1999b) also demonstrates the long recognition of the potential for the Northern cod fishery, or at least some inshore sub-groups, to collapse from overfishing[39], even with the limitations on the technology available in the 1800s, and the denial of this potential by interests committed to furthering capitalist expansion in the fishery. He also demonstrates a historical precedent for the tendency of Newfoundland's political system to acquiesce to capitalist interests over and above the interests of conservation, equity, and the objections of the inshore fishers. Events

[39] Pauly (1999: 359) explains that stocks could recover from these localised depletions because large refuges existed in deeper waters that were not effectively fished with nineteenth century technology. These refuges sustained stocks of large spawners from which recruitment could, given time, replenish depleted inshore areas.

in the fishery in past decades provide evidence for the persistence of this tendency in the management of the fishery.

Cadigan (1999a; 1999b) demonstrates a historical precedent for the current crisis, and explains the nineteenth century conflict in political and socio-political terms, noting that the introduction of more powerful technologies had a distributional effect, serving capital, but produced only a short term, unsustainable increase in productivity. Indirectly, Cadigan provides support for arguments that link the current crisis to a persistent political and resource management culture in Newfoundland; a political and resource management culture that is a legacy of Newfoundland's social, political and economic history, and one that has a tendency to promote patterns of resource use that are inherently unsustainable because they are associated with the expansionary values of capitalist accumulation. In explaining the conflict, Cadigan contrasts the resource management ethos associated with capitalism, with the ethos of the "moral economy of the commons" (Cadigan 1999a: 9-11) that, he argues, was the prevailing ethos of non-capitalist, small-scale fishers. He compares it to the "spirituality, subsistence-orientation", and over-riding conservation ethic of the First Nations, in which the interests of social equity, subsistence and conservation are acknowledged and provided for. Cadigan argues that the inevitable conflict between the two values systems was a central feature of developments in the fishery in the 1800s, as it was again in the events leading to the crisis in the 1990s.

3.4.2 Fisheries Policies 1940-1966: Hegemony and the Industrial Vision

Wright (1997; 2001) argues that the roots of the crisis in the Newfoundland fishery of the 1990s are to be found in the fisheries development policies of the period 1934-1968. During this time the Newfoundland fishery experienced a dramatic transformation as the traditional, "saltfish industry based on the household economy declined and a new, industrial, frozen fish industry arose in its place" (Wright 1997: ii).

Wright employs the Gramscian concept of hegemony to explain how a "particular vision of development - the expansion of the industrial, frozen fish sector – came to dominate fisheries policies in this period" (1997: ii):

> *For Gramsci, hegemony is achieved when the ideas or concepts that generally support the dominant economic system become universal and are accepted by the wider population as 'true' or 'common sense'. Although clearly rooted in the economic system, hegemony is only realized when the ideas transcend the economic and begin to operate on a broader, cultural level. Far from being an*

> *inherent truth, however, hegemony is historically constructed. The making and remaking of hegemonic power is a continuous process and it survives by responding to challenges from alternative social groups (Wright 2001: 5).*

Wright argues that from the 1940s through the 1960s, the dominant ideology of "many of the fisheries planners and politicians held that industrialization was the true path to prosperity ... alternative visions for the fishery had little support within the state"[40], and Wright emphasises that "ideologies are rooted in material and social interests" (2001: 6; see also 5, 42, 65, 119, 151, 156).

The industrial model of capital expansion in the frozen fish industry was driven by an alliance between a small group of frozen fish companies and the state. This relationship was the driving force behind state policy development for Newfoundland fisheries (Wright 2001: 35-36). While the inshore fishery was marginalised, the industrial sector received considerable state support and this generated an expansionist momentum that ultimately led to the resource collapse in the early 1990s.

Commission of Government Period

Wright argues that the Commission of Government period (1934-1949) was pivotal in the transformation of the Newfoundland fishery (2001: 10-36). The Commission of Government assisted the fishery to develop, but paved the way for a transition from the traditional inshore fishery based on the saltfish trade, to the modern hegemony of private capital and state sponsored industrial development of the frozen fish industry.

An inefficient political system based on patronage and merchant control of the fishery, and the "truck" system of merchant credit that was a cornerstone of this control, were identified as significant problems that had hampered economic development of the fishery in the decades preceding the 1933 political crisis. Other difficulties faced by the Newfoundland fishery included low prices due to the absence of a local market for fresh or frozen fish, and tariff barriers imposed by the United States on frozen and processed fish from Canada (Wright 1997: 140-142). These tariffs served to protect fishers and processors in the US northeastern seaboard from Canadian competition.

Wright noted that during the Commission of Government period, some development initiatives sought alternatives to the merchant credit system by experimenting with different forms of community based co-operatives to modernise and invigorate the inshore fishery

[40] This might be compared with the current hegemony of the economic paradigm in fishery management.

(2001: 11, 18-19, 24, 34). However, these efforts at co-operative economic development were soon eclipsed by a growing preoccupation with policies that focused on developing the industrial frozen fish sector. Later, as the cold war climate intensified, co-operative ventures, suggestive of socialism, were viewed with suspicion (Wright 2001: 73-74). Wright suggests that there were both ideological and practical reasons for pursuing the frozen fish path. "At the practical level, providing loans to the frozen-fish companies, which offered employment and cash to fishers for fish, seemed an easier way to develop the economy and reduce dependence on merchant credit" (Wright 2001: 35-36), while at an ideological level, development of the frozen fish industry was compatible with the dominant ideology of Western society that favoured the industrial, capitalist model of development (Wright 1997: 68, 87, 133; 2001: 5, 35, 42, 65, 119, 151, 156). "In the early 1940s the Commission of Government forged links with a small group of former saltfish merchants who were willing to make the transition to frozen fish" (Wright 2001: 26). It provided the companies with low interest (3.5 per cent) loans to build and operate frozen-fish plants, and to buy trawlers (2001: 22-26), and this saw the establishment of a partnership between the government and the frozen-fish companies. "This alliance laid the foundation for a long-term relationship between private enterprise and the state in fisheries development in Newfoundland. Indeed, it became an enduring characteristic of postwar fisheries policy" (Wright 2001: 36).

Private Enterprise-State Relationship

Wright argues that understanding the relationship that developed between the state and private industry in support of the industrial hegemony is crucial to an understanding of ongoing social and economic influences in the Newfoundland fishery (2001: 102-103). Expansion of the frozen fish sector was fostered in the 1950s, the decade following confederation, by this developing relationship. One company in particular, Fishery Products Limited, was to receive the largest share of provincial support. Fishery Products Limited had emerged from the war as the largest single frozen fish producer, and during the 1950s its expansion and growing dominance of the industry was supported by government loans and loan guarantees worth more than $5 million (Wright 1997: 144). Between 1950 and 1967 the frozen-fish companies received $33 million in government loans for the construction of processing plants and trawlers (Wright 2001: 84).

> *With the assistance of the provincial government, the frozen-fish industry grew rapidly. Between 1950 and 1964, the number of frozen-fish plants doubled and the number of fish-plant workers increased from 1,170 to 7,427. Frozen-fish production rose from 34.5 million pounds in 1950 ... to 106.9 million pounds in 1965 (Wright 2001: 85).*

In the 1950s Smallwood's provincial government expanded "the scale and scope" of the industrialisation program that had been started by the Commission of Government (Wright 2001: 103). The financial assistance it provided was instrumental in the buildup of overcapacity in the number of fish plants and a "cycle of dependency between capital and the state emerged" (Wright 2001: 103). The more funds provided by the government to build fish plants, the more would be required later to purchase trawlers to supply the plants with fish. By the 1960s the federal government, too, was to become more directly involved in providing soft loans to private firms to build more fish processing plants and to purchase offshore trawlers (Wright 2001: 126).

Wright identifies a number of significant legacies from these developments. The dominance of Fishery Products Limited in the industry raised concerns that the "old saltfish merchants" had been replaced by "new fish monarchies" and that the concentration of power did not serve the interests of those who worked for, or sold fish to the company (Wright 1997: 179). The massive assistance given to Fishery Products Limited and other firms also established a pattern of economic dependency by the frozen fish industry on government financial assistance. This cycle of dependency that developed in the 1950s continued through the 1970s and 1980s (Wright 2001: 103). Expansion led to overcapacity of processing plants and this, in turn, was to contribute to increasing dependency on trawler technology for fish supplies and increasing demands on the resource (Wright 1997: 177-80). This subsidised expansion of the industrial offshore sector corresponded to policy neglect and a lack of financial assistance for development of the inshore fishery.

In the 1960s the supply of fish to processing plants was increasingly threatened by falling catch rates from both the inshore and offshore sectors. This was largely a consequence of stock depletion due to the intensification of fishing effort by foreign trawlers on the offshore banks. To keep the frozen fish plants supplied, more trawlers were needed, and the private firms, with the assistance of federal and provincial funds expanded offshore trawling capacity (Wright 2001: 108-110). Intensification of offshore trawling exacerbated the problem of declining catches in the inshore fishery (Wright 2001: 104-125). The inshore fishery had not adopted modern technologies due to a lack of investment, available funds having been largely directed by the government towards the offshore sector[41]. In addition to the lack of access to capital, the inshore fishery also suffered from a lack of adequate

[41] Wright (2001: 104-125) notes some technological efficiency gains in the inshore fishery, such as the adoption of gill nets, that helped mask the decline in catch rates/stock abundance, but she also noted there were some resource conservation and product quality problems associated with use of gill nets.

harbours and facilities, and from low prices offered for fish by the processors. Government neglect of the saltfish trade and economic distortions associated with the unemployment insurance system for fishers (to be discussed further) also contributed to decline of the inshore fishery. Smallwood's provincial government was more politically exposed, and, therefore, more concerned about the problems facing the inshore fishery and the outport communities. But the federal government attacked the Newfoundland government's "plan to revive the saltfish economy" for "undermining the larger goal of 'rationalizing' the Newfoundland fishery" (Wright 2001: 125).

A major part of the federal government's response to the intensification of foreign fishing was the push for extended jurisdiction. International negotiations over maritime coastal jurisdiction continued between 1958 and 1969 but the issue was complicated by cold war tensions[42]. Countries such as Canada sought an extension of the established three-mile territorial limit to allow regulation of fishing to 12 miles. It was not until 1969 that Canada gained the power to regulate foreign fishing to 12 miles (from straight baselines). But much of the offshore range of the Northern cod stock remained in international waters and exposed to foreign fishing. The third Law of the Sea Conference convened in 1973 paved the way for extension of fisheries jurisdiction to 200 miles, which Canada declared in 1977 (Wright 2001: 139). Frustration over the delay and opposition to the push for extended jurisdiction encouraged the federal government to provide direct support for the expansion of the offshore fishery in an effort to outfish rival nations (Wright 1997: 284; 2001: 140).

In the 1960s the inshore fishery and the outport communities that relied upon it were under pressure from a combination of influences. Catches declined as offshore trawling pressure escalated. Inadequate government support with loans and infrastructure and the low price of fish (to be discussed later) hindered the modernisation of the inshore fishery. And in 1965 a resettlement program aimed, with much secrecy and manipulation, to encourage the abandonment of many settlements and promote centralisation of population in specific locations. This resettlement scheme was linked to the industrial paradigm and it created a great deal of lasting bitterness for the coercive manner in which it was promoted (Wright 2001: 146-149).

Wright focuses on the argument that while federal and provincial governments were often in conflict over fishery management policies, they both shared the industrial vision:

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[42] The United States was a powerful opponent of extended jurisdiction. It did not wish a precedent to be set by Canada that might be adopted in other parts of the world, limiting the freedom of US naval fleets to operate in foreign coastal waters (Wright 2001: 128-140).

> *In general, the hegemonic industrial model of fisheries development gives a limited understanding of the problem. This model places unbounded faith in the ability of capital investment, technology and increased productivity to improve the lives of those who make their living from the fishery. This hegemony was so strong that the model itself was rarely questioned by those in power, not even when the promised prosperity failed to materialize. This is unfortunate, since the model offers a shallow view of problems, never considering the underlying socio-economic relations of the fishery or how they might be the source of chronic poverty among many fishing people. Promoters of the industrial paradigm never raise the issue of who controls the technology or the means of production, simply because these questions are not part of the conceptual framework within which they operate (Wright 1997: 287).*

Wright criticises the fisheries policies of the period because they

> *...were aimed at supporting the existing economic structures and did not make significant changes in the way wealth was distributed. One of the limitations of the modernization approach is that it focuses on a small number of internal factors in the economy, such as capital and labour, but fails to consider other reasons for poverty and the unequal distribution of wealth (Wright 2001: 140).*

Prior to 1977, expansion of the Newfoundland offshore fleet may have seemed like the only way to respond to the escalation of uncontrollable foreign fishing on the Northern cod stocks. If Newfoundland trawlers did not harvest the fish and bring them to Newfoundland fish plants, foreign vessels would catch them and take them elsewhere. It is after 1977 that the issue of conflict between the Newfoundland inshore and offshore sectors became a central focus of political conflict in the fishery. This is when the relationship that had developed between the provincial government and the frozen fish industry, the associated buildup of excess trawling and processing capacity, and the ongoing hegemony of industrialisation, can be seen to have had a tragic effect on fisheries policy. This is the period in which an alternative to the expansionary industrial approach might have been considered. An alternative approach might have supported the development of a fishery that could have sustained Newfoundland's coastal communities. But the expansionist industrial approach continued. Between 1975 and 1980 the number of groundfish processing plants increased from 89 to 138 (Wright 2001: 152-153). This created an overcapacity momentum that proved unstoppable when impending resource collapse became evident in 1989.

3.4.3 Neglect of the Saltfish Trade and the Inshore Fishery (1935-1965)

In *The Decay of Trade: An Economic History of the Newfoundland Saltfish Trade, 1935-1965*, Alexander (1977) described how the Newfoundland fishing industry, which enjoyed natural advantages in regard to climate and proximity to the cod resource, fell into decline following World War II. He analysed the collapse of the traditional saltfish trade, and noted

the "manifest failure of the frozen industry to provide the alternative many had hoped for" (Alexander 1977: 16). While he argued that exploitation theories, so deeply grounded in the folklore of Newfoundlanders to explain their problems, were not helpful (Alexander 1977: 135), his analysis can be interpreted as providing additional support for them.

Alexander noted that the underlying cause of the political crisis of the early 1930s was poverty. And the blame for this was largely attributed by the Royal Commission appointed by Britain to report in 1933 on Newfoundland's troubles (Great Britain 1933), to mismanagement of Newfoundland's fishery and economy by a corrupt and self-serving political and business elite. The Royal Commission (Great Britain 1933: 109-110 cited in Alexander 1977: 1-2) attributed the failure to years of "unrestricted individualism" which led to the decline in the fishery, deterioration in the quality of the 'cure', loss of markets to competitors, depletion and deterioration of vessels and equipment, "pauperisation of large sections of the population", "an entire absence of organisation or co-operative effort", internal rivalries and competition among exporters "which had the effect of depressing prices in foreign markets", and a dependence on foreign shipping, particularly from Scandinavia, to transport fish to markets.

Alexander then examined the failure, between 1935 and 1965, to develop effective policies to improve production and marketing of the Newfoundland fishery in order to enable it to compete more effectively in world markets, particularly with Scandinavian competitors. The consequence of this failure was a Newfoundland economy characterised in the 1970s by:

> *...massive unemployment, low earned incomes, a crippling dependence upon transfer payments from the "mainland", rural poverty in decaying fishing villages, and the absurdity of the great fishery resource being exploited mainly by distant-water fishing fleets able to overcome the locational advantages of Newfoundland itself (Alexander 1977: 1).*

The similarities between the situation of the 1930s and that of the 1970s are clearly drawn in a manner that hints at the likelihood of similar causes.

Under the Commission of Government, cooperative marketing was developed through the Newfoundland Fisheries Board. This was established in 1936 and had unprecedented power to regulate cod exports from Newfoundland. The Board was controlled by the exporters, but was supervised by a paternalistic government agency, and it did serve the interests of the

fishermen[43] in addition to those of the merchants (Alexander 1977: 28-34). The Board was effective in overcoming the problems of price-cutting by individualistic exporters that often undermined the market as a whole.

During the Second World War (1939-1945), cod exports and prices were strictly controlled and the industry was stable and prosperous due to high demand and the absence of overseas competition. Following the war, a new organisation, The Newfoundland Associated Fish Exporters Limited (NAFEL), was founded to continue the system of co-operative marketing. It was no longer so directly controlled by the government.

> *To mute any fears that NAFEL was a cartel of merchants organized to impoverish fishermen, the government had agreed to issue the company with an exclusive export licence contingent upon the company's articles of association, forbidding it to buy fish on its own or interfere in any way in the negotiations between fishermen and merchants over the price of fish (Alexander 1977: 36-37).*

NAFEL was solely a marketing organisation, a coalition of merchants, and it proved inadequate to sustain the salt fish industry in the two decades following confederation (Alexander 1977: 34-37). It was exclusively concerned with salt fish exports at a time when rapid transformation was occurring in the fishery towards a greater emphasis on frozen fish products.

The post war market for salt fish was difficult due to currency restrictions and other challenges but the situation had greatly improved by the late 1950s and early 1960s. Demand for saltfish, particularly the traditional Newfoundland "shore cure" was increasing from the 1950s onwards (Alexander 1977: 121) but the Newfoundland industry was not able to respond effectively to take advantage of the opportunities this strengthening market presented (Alexander 1977: 135-138). While the demand for high quality shore fish was strong, the trend was towards increasing output of lower quality salt-bulk or green cured cod for which demand and prices were low.

NAFEL had significant limitations. Alexander (1977:75) noted that it was a "blunt" instrument "well-designed to market a standardised, industrial product", but in the production of shorefish "it was dealing with a handicraft". In better times, before the crisis of the 1920s, individual merchants and fishers had been able to meet more specialised market demands, for example, producing discernibly different products in shore-cured fish

[43] Set prices protected fishermen, whose bargaining position was typically weak relative to that of the merchants.

for Spanish and Italian markets. But the NAFEL marketing system did not provide any incentives to maintain product quality (Alexander 1977: 37). Deliveries from member merchants were simply pooled to make up shipments and there was little quality control. This explained the trend away from the production of high quality shore-cured fish in spite of increasing prices and growing market demand for this product.

Alexander was charitable in his view of NAFEL though noting its limitations. This reflects his positive views about cooperative marketing, which he saw as necessary to avoid individualistic, competitive price-cutting among merchants. Such competition lowered prices during the 1930s depression to the detriment of the entire trade, the fishery and Newfoundland as a whole. Nevertheless, the limitations of NAFEL meant that the organisation provided only for horizontal cooperation between merchants, but not for vertical cooperation between merchants and fishermen, or for that matter, consumers. The organisation can be seen as a combination of merchants granted an exclusive licence by the government to export salt cod from Newfoundland. It was therefore an unlikely medium to further the common interests of all the people of Newfoundland and was reflective of "the highly conservative political environment of Newfoundland, with its lopsided distribution of economic and political power" (Alexander 1977: 37). It was a re-emergence, post-confederation of the mercantile elite in Newfoundland politics. The suspension of self-government in 1934 had, for a time, weakened the control and influence of the mercantile community over the state. As the saltfish trade declined many of these merchants made the transition into the frozen fish industry, obtaining public funds to acquire fleets of draggers and frozen fish filleting plants (Alexander 1977: 128-139).

Alexander paid particular attention to the decline of production and trade in the light-salted, hard-dried Newfoundland "shore" fish. "It was a product in the world trade which was unique to the weather conditions and curing skills of the island, for no competitor had ever been able exactly to duplicate shore fish, either by natural or artificial drying processes"[44] (1977: 45). The shore cure was a labour intensive handicraft and represented a highly value-added process. The importance of this in providing income to support the coastal population, still largely dependent on the inshore fishery, was recognised in 1977, when catches had declined due to the crisis that preceded extended jurisdiction[45]. Alexander argued that the salt fish industry should have been sustained as a complementary addition to

[44] The general size of the fish off the northeast Newfoundland coast, which suited them to this method, was also a factor.

[45] More recent recognition of the constraints imposed on total productivity of the fishery because of ecological limits should increase the importance of employment generating, value adding processing.

the frozen fish industry in order to broaden the range of product from the Newfoundland cod resource, to take advantage of the diversity of market opportunities, and so to maximise the returns to the Newfoundland economy and its fishery dependent population (Alexander 1977: 128-132, 155).

During the 1950s and 1960s viable methods of artificial drying were being developed that reduced the drudgery associated with traditional methods, and these new methods were able to produce a reasonable "shore cure" (Alexander 1977: 131), but they were not developed by the industry, which, by the 1960s, was in decline (Alexander 1977: 61). High quality shore cured cod enjoyed strong demand in the 1960s in international markets that were developing with the post World War II recovery, but by this time the production of quality shore cured fish had almost ceased[46]. The industry had been allowed to fall into decline due in no small part to the lack of government policy support to maintain it. Inshore fishermen continued to salt part of their catch, but salt fish production had become a mechanism for fishermen to delay and prolong the period of delivery of fish to the plants so as meet the bureaucratic requirements of the unemployment insurance system, rather than an enterprise to produce quality merchandise fit for a competitive market. Alexander (1977: 16) attributed the decline of the Newfoundland saltfish trade, which had once led the world, to "inadequacies of federal policy" on the east-coast fishery and to "inadequacies of the Canadian union for peripheral regions like Newfoundland", and he noted that by the late 1960s the relocation of communities was taking place to "remove inshore fishermen from access to marine resources" (Alexander 1977: 148).

Alexander's (1977: 135) reluctance to attribute blame and criticism narrowly, is likely more than just good manners, but symptomatic of his recognition that there is no simple cause for Newfoundland's repeated failure to make good use of her resource wealth. There is something wrong that is systemic and he does not suggest that his detailed study of the dysfunction of part of the system tells the whole story. His view that exploitation theories of the fishermen's and Newfoundland's problems were not helpful and sometimes misleading may also be a directive against narrow scapegoating to explain broad systemic dysfunction. But he identified recurring tendencies for government policy-making to become of service to merchant or corporate interests and implicated this as an underlying cause of the failure to develop and sustain the fishery in economic terms in spite of natural opportunities and advantages inherent to the Newfoundland fishery.

[46] In 2002 there were some processors making the effort to produce, on a small scale, the light-salted, hard-dried "shore" cured cod to supply niche markets for this once traditional staple (Sean Cadigan, Department of History, Memorial University of Newfoundland, personal communication, 2002).

3.4.4 Dualism in the Newfoundland Fishery in the 1960s

Brox (1972: 1) explored the extent and implications of "political restrictions on the economic development of the coastal population of Newfoundland" and noted that "the history of European settlement in Newfoundland" could be understood "in terms of such restrictions". Like Alexander, Brox referred in his introduction to the political economy based on exploitation that played so strong a role in Newfoundland's social and economic history, and he linked this to ongoing problems of social and economic development in Newfoundland at the end of the 1960s. Brox noted (1972: 2-3) that the inshore fishermen had "always received the smallest share" of the wealth produced from the cod fishery, labouring first for Bristol shipowners and, later, for the resident merchants[47]. He then described politically maintained structures in the economy of the fishery that served to maintain dualism[48], and he argued that these structures were responsible for the economically dysfunctional development of the fishery and Newfoundland's outport communities. Poverty, unemployment and a poor economic outlook persisted as chronic problems facing Newfoundland at the end of the 1960s (Brox 1972: 1-8). Confederation with Canada in 1949 saw the replacement of a paternalistic colonial government under the Commission with the incorporation of Newfoundland within the generous, Canadian welfare state (Brox 1972: 4). One of the most important benefits of confederation to the people of Newfoundland's outports was the provision, from 1957 onwards, of unemployment insurance (UI) to fishermen. This provided a "small but secure" income to fishermen over the winter months when they could not fish, provided they had accumulated sufficient stamps by working during the summer to qualify for the benefit (Brox 1972: 4). This alleviated the extreme poverty of former times, but still the outports lagged economically and received little benefit from the general prosperity of the post war period. Brox compared economic and social development in Newfoundland with that in Iceland and Norway, the Scottish Isles and the Faeroes, and noted:

> *The most striking feature of Newfoundland's economy, as seen from the other side of the Atlantic, is the dualistic nature of its development. On the one hand, there are modern, sophisticated, technologically up-to-date industries. On the*

[47] The merchants managed outport economies through "truck" credit systems. It was difficult for fishermen to retain their independence in outports with only one store, where the prices of goods were high, and where fish were paid for by credit on the merchant's books rather than in cash. Debt, dependency, and poor education levels made it difficult for people to evade exploitation within these systems, which persisted into the early decades of the twentieth century and contributed to the poverty, which was the principal cause of the political crisis of the 1930s.

[48] The term "dualism" as use by Brox refers to a society or economy that operates on two distinct socio-economic levels with a large gulf separating them, a gulf that is usually maintained by social, political and economic mechanisms.

> *other, economic practices and techniques exist that appear to be almost medieval, such as inshore fishing and especially the processing of salt fish, where no innovation whatsoever seems to have taken place, either in tools, or in work methods. What is more remarkable is that the gap between modern and traditional sectors seems to be widening, and the activities within them becoming less and less integrated; for example, the processing industry is becoming less dependent on inshore fishermen for its raw material because of its acquisition of a trawler fleet, while the inshoremen seem to be turning still more to salting their catch. Most noteworthy is the fact that the traditional fishing population is not mobilised for the trawler fleets – the latest innovation in Newfoundland fishing technology. Traditional inshore fishing continues alongside commercial, large-scale trawler fishing in striking contrast to Scandinavia and especially Iceland, where modernization seems to take place simultaneously in all sectors and regions. Hill farms and isolated fishing villages in Iceland are no less technically up-to-date than Reykjavik, the capital. In many ways, Newfoundland reminds one of the truly underdeveloped or dualistic countries, such as are found in the Middle East, where the Arab herdsman tends his goats in the same way as in biblical times, within view of electronically controlled oil wells (Brox 1972: 6).*

Focusing attention on the fishing sector, Brox examined how dualism was being maintained and reinforced in Newfoundland in the 1960s. The most important factor he identified was the low price Newfoundland fishermen received for their catch (1972: 32-36). He noted that the landing price paid to fishermen in Newfoundland was only about one third to one half the price that their counterparts in Britain, Norway and Iceland received, although other economic indicators, such as wages and prices, were comparable for cod producing countries on both sides of the Atlantic, and they competed in the same world market to sell the final product (Brox 1972: 28-29).

Brox identified several mechanisms that kept landing prices low. Salt fish buyers co-operated to keep the prices down and the frozen fish processors owned their own trawlers and so were not dependent on outport fishers for supplies. Therefore they could set the price they would pay (Brox 1972: 76). Newfoundland fishermen received low prices because their bargaining position was weak relative to that of the buyers, and in spite of the political potential suggested by their large number, they had not successfully organised the political action to change things for their benefit. By contrast, Norwegian fishermen, with a similar fishery based on numerous, small coastal communities, had been able to use their political power to secure the passage of the *Raw Fish Act* of 1938, which set the minimum price paid to fishermen and accounted for the better landing price they received (Brox 1972: 76). Why had Newfoundland's outport fishermen, who represented a large part of the electorate, not succeeded in taking similar political action? In attempting to answer this question, Brox explained the persistence of dualism in Newfoundland.

During the Commission of Government (1933-1949) fishermen had enjoyed the benefit of a fixed minimum price. This had countered the exploitative practices associated with merchant credit and it is clear that in the 1960s, fishermen perceived that they would benefit from reinstating fixed minimum pricing (Brox 1972: 77). But while outport fishers would benefit from raising the landing price, the frozen fish processors and salt fish merchants would not.

The absence of effective, political action by the outport fishers to promote their common interests and raise the landing price of fish was a consequence of the dominance of the vested interests of the frozen fish processors in Newfoundland politics. Brox describes how this was demonstrated at a fisheries conference in St John's in 1962, at which Premier Smallwood acted as the moderator. When fishermen speaking for the interests of the inshore fisheries tried to table landing price as an issue for discussion, asserting that it was the priority concern for outport fishers, the Premier determinedly diverted discussion away from the issue of price (Brox 1972: 77-78). It is also significant, Brox noted, "that the fishermen-spokesmen got no backing from their union officials in their attempts at getting the price problems discussed at the conference" (1972: 79). The fishermen's union was in fact viewed as "an arm of the government", which paid most of its costs, and few fishermen thought it "worthwhile to pay the small membership fee". Brox argued that the union helped to divert the "overwhelming political potential of the outport population away from policies that might have eliminated dualism. It is used only to pressure for more federal subsidies and bounties, the effect of which helps to enforce the dualistic structure in the industry" (Brox 1972: 79).

Brox explained how the unemployment insurance system could be viewed as a federal government subsidy to the trade and the processors (Brox 1972: 26, 79). He demonstrated that the amount of income fishers received through the UI system was about the same amount as the difference in price they received for their catch compared with the price paid to fishermen in Norway. Fishers regarded the UI payment as "delayed payments for their fishing effort", and it served as an incentive to keep them supplying fish to the processors at the low prices[49] offered, but only while they accumulated enough stamps to qualify for the maximum level of payment to provide them with income over the winter (Brox 1972: 33). This tendency to "fish for stamps", and slacken off production after enough had been

[49] Landing prices in Newfoundland during the 1960s were about 2.5 to 3.5 cents per pound gutted head on, compared to 7 to 10 cents per pound in Norway gutted head off. Apparently Norwegian fishers could get a better price for selling cod heads for mink fodder than Newfoundland fishers received for the whole fish (Brox 1972: 29)

accumulated, was recognised in the 1960s as a cause of poor economic development in the outports (Brox 1972: 30-34; Copes 1961: 92; Faris 1966), and Brox showed that it was the *way* that the UI system operated that caused it to reinforce dualism because it helped to keep the landing price low. Brox argued that the problems of the fishery, "the shortage of enterprise, the absence of vessel diversification, the short fishing season, the unpredictable quality of salt fish, the technical retardation, and the low income of the fishermen" were all linked to the low landing prices (Brox 1972: 31-32), and to the mechanisms that served to keep them low and to maintain dualism in the Newfoundland fishery.

Development in the outports of modern processing facilities of an appropriate scale to handle local production, while technically and economically feasible, was deliberately impeded by government policies that were influenced by the concerns of the large corporations, which did not want local plants to be developed that would "interfere" with the collection of fresh fish for processing in their factories (Brox 1972: 80-82). In other words, they did not want development of a more competitive environment that might, by providing alternatives to their factories, generate competition and upward pressure on the landing price of fish. Brox pointed out that the beneficiaries of dualism in the Newfoundland fishery were the frozen fish corporations that were "buying outport fish at three cents per pound, hiring labour at seventy-five cents per hour, and selling the product through the supermarkets at sixty cents per pound" (Brox 1972: 81).

Brox also explained how quality control regulations enforced by the health authorities were an example of the sort of policy instrument that served to discourage small-scale processing in outports (Brox 1972: 81-82, 89). The regulations made small-scale operations impossible because they required the installation of costly equipment, the price of which served as a "threshold ... which tends to keep small operators off the market" (Brox 1972: 81). If the regulations had specified maximum bacteria content of the product rather than the required equipment in the plant, small operations, with additional labour and supervision, would have been able to meet the standards and compete with the large fish processing corporations. Brox (1972: 82) also identified similar barriers relating to health requirements for milk production in Newfoundland that served to keep small rural producers out of urban milk markets; a situation he contrasted with production in Norway and Iceland where the quality of the milk was monitored rather than the plant and equipment in the dairy. Reinforcement of dualism by regulation was clearly not limited to the fishery and this suggests that it was a consequence of a more pervasive political culture in Newfoundland that protected larger and more centralised, capital-intensive operations from the potential competition of small-scale rural producers.

Faced by these economic and bureaucratic obstacles, or "conversion barriers", which made it difficult for outport people to convert their labour and local resources into the cash economy, their household economies depended to a significant degree on subsistence activities as well as domestic commodity production (Brox 1972: 70-75, 9-19). In addition to cash from fishing and welfare payments, the "income" of outport households was supplemented by vegetables from kitchen gardens, and by fish, rabbits, seals, moose, firewood, saw logs, berries and other commodities hunted and gathered in the local environment for home use. Outport people also produced articles of clothing such as knitted goods, and they built and maintained their houses and boats themselves, although at the time people were not allowed to build boats while receiving UI[50].

In spite of the conversion barriers that hindered economic development in the outports, Brox's (1972: 42-50) analysis of outport household economies demonstrated that the people obtained a higher standard of living, when the value of subsistence production was taken into account in addition to cash income, than they would have done as wage labourers working on the fishing trawlers and living in the urban centres from which these operated. It was not, therefore, surprising that they resisted relocation to urban centres. The shortage of labour to work the trawlers was a limiting factor for the industrial sector in the 1960s. It wasn't that people were resistant to wage labour, but the wages on offer were not sufficient to compensate for the higher cost of living in the urban centres, where living costs, and especially housing rents, were much greater than in the outports. In theory, the wages on the trawlers were based on a share of the value of the catch, but this was artificially determined by the corporations, who, through vertical integration, were really buying the fish from themselves, and could set the nominal value for the catch in an arbitrary manner (Brox 1972: 46).

Brox (1972) demonstrated that dualism, historically a characteristic of the cod fishery and Newfoundland's social and political culture, was being maintained in the 1960s by government policies, which directed economic development of the fishery in ways that served the interests of the new elite, the corporate frozen fish enterprises, at the expense of the inshore fishermen and the economic development of the outport communities. He showed that this dominance of vested interests in the politics of the fishery and the island was an underlying cause of economic stagnation and Newfoundland's chronic social and development problems. Federal transfer payments, the fishermen's UI system in particular,

[50] This regulation was later removed.

also served to reinforce dualism. They did this by acting as subsidies to the frozen fish processors, and by compensating rural people for the consequences of retarded economic development in the outports, they helped to diffuse the potential that poverty and frustration might otherwise have had to stimulate political action to challenge the *status quo* of economic and political relations in the fishery.

Brox demonstrated the interlinked and self-perpetuating causes and symptoms of Newfoundland's social and economic stagnation. He made a linkage between Newfoundland's political environment, the legacy of a long established culture of exploitation, patronage and social, political and economic dualism, and Newfoundland's poor economic and social development, which was a consequence of dysfunctional resource development policies and practices. But he asserted that alternatives could be found (1972: 85-103). Newfoundland's fate, though influenced, was not determined, by its history. Dualism, stagnation and rural decline persisted in Newfoundland as a result of policies, and the presence of conversion barriers, that protected vested interests and reinforced dualism. They were maintained by a business and political elite that benefited from the *status quo*. Brox identified and explained the working of some of these policies and conversion barriers, and stressed that Newfoundland's development problems were a political issue. It was about who benefited from current or proposed systems (Brox 1972: 8). He emphasised that alternatives could be put in place with only slight modifications to the existing system. They need not imply a threat to capitalism – an apparent concern of critics of the time. And the example of Scandinavian rural development, with which Brox was familiar, provided a model of what was possible. It indicated the benefits of development based on local processing and value adding, co-operative, community based production systems (1972: 95-96), and intermediate fishing technology that filled the gap between the small boats of the inshore fishery and the factory freezer trawlers (1972: 90-92).

The conflict between the interests of the outport fishermen and the frozen fish corporations that bought their fish was fundamental to the politics of the fishery. The high degree of separation between the fishers and the corporations had the potential to generate considerable political tension. Brox showed how the provincial government was able to divert this tension toward demands on the federal government for subsidies and other forms of financial assistance, and away from issues that would lead to political confrontation between the populous outport sector, and the influential corporate sector of the fishery (1972: 25-27, 76-88). By diverting potential political challenge, the provincial government contributed to the maintenance of dualism and the underlying political tensions inherent to it. In so doing it sustained an inherently unstable political structure – one that required ongoing

subsidies to continually defuse the underlying tensions generated by inequality in a democratic society. Economic subsidy or economic growth was required to defer political confrontation. One can appreciate how the persistence of this political dynamic underpinned the need for expansionism in the fishery, particularly post 1977, and this, in part, explains the political difficulty of acknowledging the need for restraint due to stock limitations in the 1980s. Thus, policies that were a product of a persistent Newfoundland political and resource management culture that tended to serve the vested interests of a corporate business elite at the expense of the interests of the broader population reinforced dualism in the fishery in the 1960s and, in so doing, entrenched social and political structures that were dependent on economic expansion and subsidies, and this can be seen to have contributed to the crisis in the 1990s. These underlying political tensions provide an explanation for the incapacity of politicians to properly acknowledge the need for harvesting restraint in the Newfoundland fishery between 1989 and 1992.

In a similar manner to the way in which outport people at first resisted, then were drawn into a spiral of dependency on new, more powerful, capital intensive technologies in the nineteenth century (Cadigan 1999b: 147-169), they became, from the 1950s onwards, increasingly dependent on the frozen fish corporations and the processing plants. The lack of alternative economic opportunities in the outports, a consequence, in part, of policy neglect, forced the immediate economic interests of outport fishers into alignment with those of the frozen fish corporations in contradiction to the deeply rooted and fundamental conflicts between them. The dilemma of dependency on the established structures of the industrial fishery made it difficult for alternatives that would better serve the interests of the outport people, and the social and economic development of Newfoundland generally, to emerge.

3.4.5 Contradictory Policies and Fishery Conflict in the 1980s

Sinclair (1985) examined developments and socio-economic conditions in the Newfoundland fishery in the 1980s, some fifteen years on from Brox's analysis. Some of the issues that Brox had identified had been partially addressed. For example, fishers could now build boats while receiving unemployment benefits (Sinclair 1985: 110), and a few inshore fishers had made the transition from domestic commodity production to petty capitalism through the acquisition of larger vessels (primarily small draggers and longliners from 10 to 20 metres in length). But in general the inequality and divisions between the traditional inshore fishery and the industrial sector, identified by Brox, remained, and they had become more complex

and intense than in the 1960s as a result of new divisions between those outport fishers who had adopted new technologies and those who had not (Sinclair 1985: 98-104).

Limited-entry policies now served as a barrier to prevent the majority of Newfoundland's 20,000 inshore fishermen from graduating from their small open boats, to the more productive and profitable newer technology of the small draggers and longliners (Sinclair 1985: 57-82). On the Burin peninsular in North Western Newfoundland, the site of Sinclair's study, 42 skippers had licences to trawl for shrimp and groundfish, whilst an additional 148 "longliners", vessels in the 10-20 meter class, were largely restricted to gill nets and these employed approximately 800 fishers. The majority of the region's 3,789 licensed fishermen were excluded from these more financially rewarding fisheries and operated small, open boats, generally less than 8 metres long. They were, as a consequence of state policies, locked into the lifestyle of domestic commodity production, subsistence, and UI dependence that was the persistent characteristic of the outport fishery (Sinclair 1985: 111-114).

The small dragger fishers, having emerged as a privileged local elite, were nevertheless vulnerable to market and regulatory factors that were beyond their control. Sinclair (1985: 95) describes their condition as "dependent petty capitalism". They could do little to influence the price they received from processors for their fish, and they had no control over their input costs for fuel and other equipment, and they were dependent on policies of the federal state, which regulated access to the fishery resource and allocated quota. Ambiguity and contradictory social outcomes continued to characterise federal and provincial government policies that affected the Newfoundland fishery (Sinclair 1985: 105-116). There continued to be a deep division and conflict between the interests of the fishers and those of the corporations. The corporations remained the significant beneficiary of state policies shaping the fishery, including those, such as UI, that ameliorated some of the immediate social impacts of the ongoing, policy driven transformation towards the capitalist mode of production in the fishery. Sinclair's study reinforces the view that the structural problems identified by Brox that served to maintain dualism in the Newfoundland fishery and undermined social and economic development in the province in the 1960s remained essentially in place in the 1980s.

The Fate of Domestic Commodity Production Within Capitalism

Sinclair explored the reasons for the persistence of the inshore fishery, and pondered its likely fate. With reference to established theoretical views, based largely on research in

agriculture, he examined the fate of domestic commodity producers within societies dominated by mature capitalist modes of production (Sinclair 1985: 14-30).

Sinclair noted a number of terms including *peasant*, *dependent* and *petty* capitalism that have sometimes been used to refer to small scale family based production systems, but he adopted the term *domestic commodity production* to describe the common mode of production in the Newfoundland inshore fishery, which he defined as:

> *...a form of production which draws on the household for its labour supply and organisational structure; it depends on articulation with commodity markets to realise the value of what is produced and to acquire both personal consumption goods and the means of production. It is both a domestic unit and a commodity producing unit...(1985: 18)*

and is often combined

> *...with other forms of production through the involvement of the household members in subsistence economic activity and wage-labour to supplement and support domestic commodity production... to sustain the household.*

Sinclair drew a distinction between domestic commodity producers and those fishermen who had graduated from open boats to the small draggers and longliners of the middle distance fleet, and he preferred the term *dependent petty capitalism* to describe this mode of production.

Sinclair's (1985: 22) examination of the fishery is set within a theoretical discussion of differing views regarding the survival of domestic commodity production within capitalism and he cites key sources and briefly outlines the debate. One school, grounded in the work of Marx and Engels, considers domestic commodity production to be a transitory phase, destined to reduce and then disappear over time (Bernier 1976; Breton 1977; Deas 1981; De Janvry 1980; Gillespie and Gilbert 1981; Goss *et al.* 1980; Hedley 1981; Kautsky 1980; Lenin 1964; Lessard 1976; Shenton and Lennihan 1981; Sinclair 1980; 1984; Steeves 1972; Vogeler 1981). A second group considers it can persist within capitalism if it is "insulated" from it, for example, if it can supply the demand for certain goods and services that are not easily satisfied by capitalist forms of production (Thorner 1962; Chayanov 1966; Nikolitch 1972), and especially if it is integrated within, and its continuation is "functional for capitalism" (Amin 1974; Denis 1982; Mann and Dickinson 1978; Mottura and Pugliese 1980; Sacouman 1980; Vergopoulos 1978).

Brox (1972: 30-34) had demonstrated how these inshore fisheries have served the capitalist frozen fish corporations by supplying raw fish for the processing plants at low prices subsidised by federal UI payments. This relationship is compatible with explanations for the survival of domestic commodity production within advanced capitalist development where this form of production was integrated with and functional for the capitalist mode of production.

Sinclair (1985: 28-30) noted the importance of specific ecological and cultural circumstances to the possibility of survival of domestic commodity production, and the significant role that state intervention can play in either speeding up, or slowing (but never, it seems, reversing) the process of differentiation. Sinclair's examination of the coastal fishery in the early 1980s is framed within the context of an ongoing contest between interests linked with capitalist expansion in the fishery, and those linked to concern for the social and economic wellbeing of the outport people and their survival in their traditional cultural context. He also identified the paradox that is a common dilemma for coastal people in much of the world who are experiencing rapid transformation and structural pressures on their modes of production, in which they find themselves drawn into conflicts in defence of their livelihoods and "...enterprises, whose survival is threatened by the functioning of the capitalist mode of production in which they participate" (Sinclair 1985: 30). Wages, often earned by women from work in the processing plants, and associated UI benefits, made an important contribution to many outport household economies, at the same time as the draggers that supplied the plants with raw materials for much of the processing season, threatened the viability of the small-scale inshore fishing that was the traditional backbone of these household economies; and these small-boat enterprises had also become dependent on the processing plants to purchase their fish.

Sinclair (1985: 31) noted that the survival of domestic commodity production for so long in the coastal fishery was due to the difficulty of accumulating capital for investment out of the proceeds of traditional salt fish production and the inability of a poorly educated population to overcome the barriers of bureaucratic procedure required to access government grants and other assistance schemes. He also identified, as a barrier to progress, a significant "culture of limited expectations, which was a realistic adjustment by the fishermen to their environment, but one which discouraged constructive, innovative action, either on an individual or co-operative basis" (1985: 31). One could also argue that these were self-perpetuating causes and consequences of entrenched social, political and economic dualism in the fishery and in Newfoundland society more generally.

Between the 1960s and the 1980s, however, improved education and communications enabled some of the younger outport fishers to attempt to realise more ambitious expectations than those of their tradition-bound forefathers (Sinclair 1985: 57-82). With the assistance of federal and provincial grants and subsidies, some fishermen graduated to larger middle distance vessels that could work further offshore than the traditional open boats. At first these petty capitalist enterprises fished with gill nets for cod, but some began to experiment with trawling for shrimp, and later for cod, as more powerful engines were acquired in the 1970s and this fishery became profitable. Notably, these longliners and draggers, while a highly visible development in the fishery, absorbed only a minority of fishers. Most fishers remained with the traditional methods and technology of small boats, cod traps, nets and lines. In the late 1970s, the possibility of graduating from open boats to larger petty-capitalist enterprises was closed when more restricted licensing policies were introduced.

Sinclair (1985: 105-106) emphasised the significant influence of state intervention and the institutional and organisational context on how fish harvesting occurred and on its articulation with the wider economy, and he demonstrated that "state policies taken as a whole have been ambiguous in their intent and contradictory in their impact" (1985: 106). He described the complex political environment in which Newfoundland fishermen operated, noting that:

> *It might be more accurate to talk about states rather than the state, because the federal and provincial administrations often fail to act in a co-ordinated fashion with regard to the fisheries. Indeed, their policies are at times contradictory. Fishing falls under federal jurisdiction, whereas fish processing, as a manufacturing activity, is subject to provincial regulations. However, the federal government controls interprovincial and international trade, which gives it leverage to establish quality control regulations for fish processing as well as for harvesting. Provincial processing regulations are actually enforced by the federal inspection officers, a rather unusual example of enduring co-operation between the governments. Both governments provide grants and loans to the harvesting and processing sectors of the industry. They also participate more generally in regional and community development (Sinclair 1985: 106).*

In reviewing the impact on fishermen of a range of state policies, Sinclair divided them into three groups (1985: 106). The first set included subsidies to capital investment costs which indirectly supported the incomes of fishermen, the second group were direct forms of income support, which indirectly supported the small-scale capital investment required to sustain domestic commodity production. The third group of policies were those that served to control access to the fish stocks.

From 1970 to 1981 the federal government provided a 35 per cent subsidy to the construction cost of replacing an existing vessel, however, between 1981-1983 this was reduced. The provincial government also provided support through the Fisheries Loans Board (FLB) for vessel rebuilding and repairs. Bounties or grants were paid on the basis of length or tonnage for vessel construction, and a 35 per cent subsidy was also paid for rebuilding and repairs (Sinclair 1985: 107). Other capital assistance provided by the FLB protected fishermen from interest rate rises by covering the excess repayments if rates rose above 12 per cent. Fishing gear was also subsidised during the 1970s, but between 1981-1983, capital assistance for fishing gear ceased. This reflected a policy reversal from the 1970s, when optimistic projections for the fishery underscored expansionary policies. By the 1980s, as the fishery sector was clearly failing to live up to the expectations that it would provide a viable economic base for rural Newfoundland, a policy shift occurred favouring a greater degree of economic rationalisation (Sinclair 1985: 108).

The policy shift towards rationalisation had been foreshadowed by federal government policy (Canada 1976) which identified four management objectives for the fishery: (1) the extension of jurisdiction to 200 nautical miles off shore; (2) the establishment of firm quotas designed to rebuild the stocks; (3) the improvement of quality control and marketing procedures; and (4) the elimination of free competition among fish catchers (Sinclair 1985: 111). Sinclair also noted that: "although the quota concept was first introduced to fisheries management to serve a biological goal - the protection of the resource base - it has become a device explicitly oriented to social and economic goals" (1985: 111).

Limited entry was initially introduced in 1967 in the Maritime lobster fishery. It was soon extended into other specialised fisheries such as salmon, herring and shellfish, and in 1976 limited entry licensing was applied to the otter trawl fishery for cod and shrimp (Sinclair 1985: 112). This became politically contentious after 1977 when these small dragger fisheries became increasingly profitable. The provincial government, anticipating a boom in the sector, continued to assist fishermen to acquire vessels and gear but the federal government resisted granting additional licences. "Thus, for all intents and purposes, it appeared that the federal government had blocked any possibility of social mobility by fishermen within their industry and had created a local elite, almost by administrative fiat" (Sinclair 1985: 114).

Sinclair argued that the federal government's move towards rationalisation of the fishery by limited entry and quotas was motivated by the desire to reduce the level of economic

dependency of both the corporations and the small-scale outport fishing people on federal subsidies. There had also been strong lobbying for limited entry by those who already had licences (Sinclair 1985: 113). Sinclair noted: "the state has become a major factor in the fishing industry in that regulations govern who can fish, what they can catch, how they must handle it, how much can be caught, when it can be caught, and what gear can be used" (1985: 114-116). The fishery was further shaped by regulations governing UI and other subsidies that influence the behaviour of fishermen, and by rules applying to the administration of capital-assistance grants and subsidies that influenced the type and specifications of vessels and equipment that fishers used in harvesting the fish. These policies evolved over the years in an *ad hoc* manner in response to a series of crises in the fishery. They generated contradictory social consequences, as some policies encouraged "differentiation and proletarianisation, while others hold back this process" (Sinclair 1985: 114). They were not therefore component parts of a cohesive vision or plan for the fishery. That they generated contradictory social consequences is reflective of the contradictory pulls related to the competing demands inherent to the political environment in which they evolved; an environment that is the consequence of dualism (as noted by Brox [1972] and discussed above).

Sinclair noted the expression of contradictory policy pulls in federal policy statements which prioritised economic efficiency and, at the same time, the maintenance or maximisation of employment, as general objectives, observing that:

> *The political aspect of the fisheries problem has an economic foundation in that the industry has been conducted in such a way that most participants cannot derive a standard of living that approximates the Canadian norm. Yet in areas such as the Northern Peninsula, there are no alternatives to fishing for most people, and forced migration is unacceptable (1985: 114-115).*

Politicians, policy-makers and advisors are concerned with maintaining social order and legitimacy. They recognise the threat to their legitimacy that would result from a pure capitalist-oriented policy because of the severe social hardship and reduced employment that would accompany full-scale rationalisation of the fishery (Sinclair 1985: 115). On the other hand, budget pressures in the 1970s and 1980s made it difficult to sustain the levels of federal subsidy that had come to be relied upon to soothe the underlying tensions generated by the fundamental conflict between the interests of the coastal people and the fisheries corporations.

Sinclair (1985: 116) emphasised the strength of the role played by the state in shaping the fishery. He suggested that the progression towards full blown "capitalist rationalisation" of the fishery was restrained by a combination of genuine concern about the hardship this would impose in coastal communities, organised opposition from fishermen, and the desire of political leaders to avoid disorder and the "loss of legitimacy to which a hard and fast commitment to capitalist rationalisation would lead". Nevertheless, he noted that up until 1981-1982, the state had generally "been unprepared to promote state or cooperative enterprise in harvesting, processing and marketing as possible alternatives to a private, capitalist industry" (1985: 116).

The nature of the economic relationship between coastal fishers and the buyers of their catch has been recognised as an important factor determining the circumstances of outport social and economic existence. Taking a commodity chain of production approach, Sinclair examined this relationship and he noted that both fish harvesters and the processing corporations were to a large degree dependent on market forces over which they could exercise little or no control. The production chain leading to a fillet of fish on the consumer's plate as a final product includes fish retailers, fish wholesalers, processors, fish harvesters, and the suppliers of inputs to the harvesting process which include manufacturers of vessels, engines, fuel and other equipment; and there are often merchants or other intermediaries between the steps in the chain. Sinclair (1985: 118) argued that fishermen are generally dependent producers as they are unable to control the functioning of the production chain. They form a captive market for suppliers of motors, fuel and other equipment, and they are 'price takers' rather than 'price-makers'[51]. The processing corporations are also dependent, he argued, because they are not strong enough to control the macro-economic forces that affected the costs of production and the demand for fish products. This includes factors such as interest rates, tariffs, and consumer tastes and incomes. Fish suffers as a product from being a weak staple commodity with highly elastic demand. Producers within the chain are not able to pass on higher prices to wholesalers and consumers without experiencing a falling demand and reduced sales of fish. Sinclair explained that the seemingly perpetual conflict between fish harvesters and processors over the price of raw fish is a consequence of this economic pressure from both ends of the production chain, in that:

[51] The petty capitalist draggers and longliners were in some ways more vulnerable than the traditional inshore fishers, being more dependent on purchased technology and borrowed finance. Domestic commodity producers in the small-scale fishery might still build their own boats and engage in subsistence production and obtain income from other sources in addition to earnings from the sale of fish.

> *...except where production has become vertically integrated within a corporation, conflict is inevitably built into relations among the producers in different segments of the production chain, for they have a competing interest in the distribution of the final value of the fish across the chain (1985: 126).*

However, it is the fish harvesters that generally are in the weaker position in this conflict. They often are restricted by the limited number of buyers when they have an abundant catch to sell. They are many and each enterprise, on its own, is too small to be able to influence the price on offer. It is in the processors' interests to maintain an environment among fish harvesters, of competition and over-supply. It is in the fishers' interests to attempt to organise to act collectively so as to be able to deny raw materials to the processors as a means of leverage for higher prices. It is also in the fishers' interests to have many buyers to provide a more competitive market.

Sinclair (1985: 126) observed that "the problem of mobilizing domestic commodity producers and petty capitalists against corporate fishing capital was overcome by the late 1960s," in northwest Newfoundland with the successful establishment of the Newfoundland Fishermen, Food and Allied Workers Union (NFFAWU), and the Northern Fishermen's Union. This led to more effective action by fishers, including boycotts and strikes that closed processing plants in 1970, 1974 and 1980[52]. The issue of dispute, the price paid for raw fish, continued to be the central issue of conflict in the relationship of harvesters with processors.

Licensing and funding policies that decided the location and number of fish processing plants had a significant affect on fishermen. It was (and continues to be) a key issue in the politics of the Newfoundland fishery. Sinclair (1985: 108, 121) gave an example of a processing plant planned for the settlement of St. Barbe, on the northern peninsular, which was cancelled when anticipated federal funding for the plant was refused on the grounds that it would not be economically viable. Local fishermen were annoyed. They felt that they had been denied a competitive market for their fish, and that the project had been cancelled as a result of "behind the scenes" campaigning by another processing company.

Even when there were numerous buyers, the price offered to fishermen rarely varied from the minimum price negotiated by the union with the major companies (Sinclair 1985: 123). Factors other than price often determined where fishers sold their catch. For example, they

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[52] The emergence of the NFFAWU and its rise to dominance was characterised by intense and disruptive union politics (see, for example, Macdonald [1980]). The NFFAWU had an overwhelming pro-dragger orientation and failed to provide much recognition, support or representation to small boat fishers.

often preferred to sell to local processing plants rather than to buyers who planned to truck the fish to be processed elsewhere. This preference reflected concern by fishermen for the wages and the all-important UI stamps for relatives and friends employed in local plants. It may also have helped fishers gain preferred access to sales during the early season when catches were high and buyers sometimes restricted purchases to home-port vessels (Sinclair 1985: 124). Difficulty selling fish during the early season caused frustration to fishermen who felt that the plants, by putting on extra shifts, could have handled larger volumes at this time when fish were abundant and in good condition. They felt that buyers took advantage of the situation and downgraded fish, thus reducing the price they had to pay (Sinclair 1985: 136-139).

A new quality control program had been introduced in 1980 to improve the marketability of the final product. Fishermen agreed with the logic of the program and took pride in landing their catch in good condition. But disputes arose because fishers believed that the processors were abusing the program by downgrading fish in order to lower the price. Good quality fish were downgraded in May when they were in the peak of condition but the market was glutted with the high catches typical of the early season. Poor quality fish were accepted in August when the buyers could not be so choosy. This sort of behaviour contributed to the poor relationship Sinclair observed between the buyers and fishermen in 1982, which was "symptomatic of a managerial attitude towards fishermen to the effect that they were there to be used or ignored, according to the needs of the company" (1985: 139-140).

Conclusion: The Newfoundland Fishery in the 1980s

Sinclair's work provides insight into social, political and economic conditions in the fishery at the beginning of the 1980s. He explored the issues and conflicts inherent to the pursuit of contradictory development goals and examined the forces acting within the political environment of the Newfoundland fishery. These forces generated pressures for economic subsidy and expansion, on the one hand, while contradictory policies were attempting to rationalise the fishery, restrict entry and reduce its need for financial support on the other. Sinclair linked these contradictions to the underlying causes of persistent dysfunction in the Newfoundland fishery. His description of the fishery in the early 1980s shows that it was marked by division, conflict, and inequality and that these conditions were exacerbated by government policies that controlled access to the resource base. Policies of the federal and provincial governments had been developed without a clear direction, and were uncoordinated, ambiguous and contradictory. Matthews (1995a) comments on the contradictory pulls of federal and provincial policies and notes the alienation produced among fishers. Charles (1992) also notes that the fishery was characterised by conflict:

conflict between the inshore and offshore sectors, conflict between mobile and fixed gear users, and conflict between fishers and processors. Symptomatic of social and political dysfunction was an industry that was economically inefficient, and wastefully destructive of the fishery resources upon which it depended. These were the roots of the resource crisis that rapidly developed in the late 1980s, though at the time of Sinclair's study in the early 1980s, resource sustainability was not yet considered to be under threat.

The discussion of theoretical views on the relationship of domestic commodity production within capitalism frames a case study of salience to the central issue in the Newfoundland fishery from before federation to the present day – the problem of sustaining the outport communities within a developing industrial capitalist economy. Part of the problem can be traced to dualism in Newfoundland society. The economic benefits of industrialisation of the fisheries are experienced by one sector of society while another experiences the costs, rather than costs and benefits being shared equally by all, and for the majority of the coastal population capitalist industrialisation represented more of a threat than a benefit.

3.4.6 Fisheries Policies 1977-1990: The Allocational Effect of an Excessive TAC

Blackwood (1996) investigates fisheries policy between 1977-1990, paying particular attention to the effect of policies on resource allocation between the inshore and offshore sectors. He notes the priority given to addressing conservation concerns in the wake of the 1992 collapse, while little attention has been given to allocation, despite the fact that issues related to allocation are often the most "controversial aspect of fisheries management" (Blackwood 1996: 11). Blackwood makes the important linkage between the issues of conservation and allocation, noting that the high TACs set in the years leading to the 1992 crash had the effect of redistributing the catch to the offshore sector at the expense of the inshore fishery. Blackwood explains:

> *The level of the TAC indirectly affects the allocation process especially when stocks are over-exploited and at low levels of abundance. Under such circumstances mobile gear vessels are able to maintain catch rates by hunting for fish while passive fixed gear catches invariably decline (1996: 44).*

Increasing the TAC and the nominal allocation of quota to the inshore sector would not have enabled it to increase its catch. On the contrary, the inshore's catch would probably have declined further as the offshore fleet, armed with more effective technology, could harvest

all of its allocation, further depleting the stocks and leading to a further decline in the inshore catch[53].

In the context of the politics of the Newfoundland fishery, as described by Brox and Sinclair, in which the tension between the inshore and offshore sectors stimulates contradictory policy demands, the political attraction of high TACs in the late 1980s can be readily appreciated. They enabled politicians to pay lip service to the populist concerns of the inshore fishery by nominally allocating to it a generous portion of a high TAC, while at the same time serving the immediate economic interests of the offshore sector by allowing it, in fact, to harvest both a larger quantity and share of the harvestable cod stock.

Blackwood maintains that despite public statements and published documents affirming the priority of the inshore sector from 1977-1991, "the greater part of the resource was allocated to other users such as the Canadian offshore fleet and foreign countries as part of Canada's bilateral agreements" (1996: ii). He suggests that the

> *failure to adhere to stated goals and objectives was largely owing to the overly optimistic resource projections of the late 1970s which projected a 350,000 - 400,000 mt. total allowable catch (TAC) by 1985 and estimated the inshore requirement to be approximately 230,000 mt. (1996: ii).*

The combination of optimistic resource projections and intense pressure for allocations from various sectors resulted in non-surplus allocations of Northern cod to foreign countries and the Canadian offshore sector at the expense of the Newfoundland inshore fishery.

Neglect of the Dependent Inshore Fishery

Blackwood noted that "hundreds of small isolated communities throughout Labrador and the northeast coast of Newfoundland are dependent upon the Northern cod stock for their economic and social survival" (1996: 90), and he observes:

> *The Northern cod stock never recovered to the point where the needs of other users should have superseded the inshore's "priority allocation". By the time the biological reality became apparent, however, most of Atlantic Canada's offshore fishery had become dependent upon Northern cod and the inshore sectors concerns and demands were either ignored or treated the same as those of the growing number of other users competing for their share of the Northern cod stock (1996: 57).*

[53] As discussed earlier, this argument rests on the assumption that the offshore and inshore fisheries were targeting the same stock of fish. It is valid to the extent that there is believed to be some seepage between partially discrete inshore and offshore sub-groups of the Northern cod stock (Harris 1990: 47,49).

In the 1980s, the Canadian DFO was highly regarded and the Northern cod fishery was viewed as a model of effective, modern fisheries management. The subsequent collapse of the fishery makes Finlayson's examination of institutional dysfunction within the DFO an important study that has wider relevance to understanding the behaviour of similar institutions in other places. As noted earlier, the study benefited from an exceptional degree of openness of the DFO to critical scrutiny and this enabled a clear picture to be developed. This openness can be explained, in part, by the extent to which the organisation had become discredited in the wake of the fishery collapse. Stripped of the defences usually provided by the political power of state authority in shielding affiliated institutions from intrusive scrutiny, the DFO was left exposed to criticism (Finlayson 1994: 63-65). Finlayson (1994: ix) also emphasises the cooperation and sincerity of the DFO officers he interviewed. They were deeply concerned over the crisis and wanted to contribute their insights and experiences to developing an understanding of what went wrong.

Finlayson identifies the tendency of institutions to develop conceptional and operational inertias.

> *These have the power to predetermine the collective reality of its members; to discourage rather than support free and open debate of controversial issues and inhibit and punish internal dissent or criticism. In short, these inertias enforce the micro-social reproduction of institutional structure and cognitive culture (1994: 1).*

Overly optimistic assessments and projections of the size of the Northern cod stocks during the period from 1977-1990 were the basis upon which the DFO legitimised unsustainable harvest levels which ultimately brought about the collapse of the fishery. Finlayson (1994: 2) argues that these overly optimistic assessments were a consequence of the relationship of Canadian fishery science with the federal government. Central to the issue is the inherent tension between the positions of "scientific rationality" grounded in an academic tradition of independence and disinterest, and the "bureaucratic rationality" of the state grounded in "pragmatic/political traditions". Finlayson identifies the conflicting and competing forces that mark the relationship between an essentially political institution, the DFO, and the professional institution of science:

> *The political institution of the federal government, operating through the Department of Fisheries and Oceans, is the primary source of the Science Branch's funding and functional authority. However, the Science Branch's sole raison d'etre within that political institution is the epistemological authority derived from the putative independence of its knowledge from the political*

> *concerns of the state and its allegiance to the classical norms and values of science (1994: 2).*
>
> . . .

Finlayson acknowledges the widely divergent interpretations that can be inferred from the above relationship that his correspondent, Dr Jake Rice, a senior DFO scientist, identifies:

> . .
>
> *A non-pejorative interpretation is that the government believes in the western concept of rational, impartial science, and has chosen to try to base resource management decisions on such a rational impartial basis. The authority of its (the government's) resource management decisions then flows not from authoritarian power but from a rational and impartial source. It is simply good housekeeping to make those scientists civil servants. The other interpretation is that States are inherently autocratic. Being clever autocrats, however, they require dummy justifications for their decisions; otherwise people would continually challenge the power of authority. A flock of domesticated scientists, kept sympathetic to the goals of the State through selective funding and flattery, provides such a façade. As long as the government cultivates 'science' as a special and higher form of knowledge in the eyes of the public, it gains the authority of 'science' for decisions made primarily (if not exclusively) on other grounds (cited in Finlayson [1994: 2-3]).*

Finlayson argues that reality lies not with an "either - or" consideration of the above propositions, which he suggests "represent the extreme ends of a continuum" (1994: 2). Nor is it easy to determine exactly where the truth lies on the continuum - it is complex, fragmented, changeable and subject to perspective.

Writing in a different context, though one that has parallels with Finlayson's study, Duncan (2003) provides a concise explanation of the "conditionality of science", and its "rhetorical utility". She draws on research into the sociology of science by Jasanoff (1987; 1990), Latour and Woolgar (1979) and Latour (1987), to explain how scientific "facts" are constructed to serve particular interests. She also uses the concept of a continuum which she attributes to Latour (1987), though it is a concept that differs slightly from Finlayson's use as described above, to explain the transformation by the processes of scientific review and publication in which "useful" information gains power, legitimacy and authority as it progresses along the continuum and is transformed from "artefact" to "fact".

Finlayson explains that the "history of the fishery can be portrayed as a long series of crises". After extended jurisdiction in 1977, "a strong, institutionalized role for science was created. The fisheries management process arose expressly to help mitigate the 'boom and bust' cycles that had plagued the fishery in the past" (1994: 6). However, "in 1982, and again in 1987 and 1989, generally perceived crises ... occasioned the formation of federally

sponsored task forces to investigate their causes and conditions and recommend remedial and corrective measures" (Finlayson 1994: 7).

The Kirby Report (1983) responded to a "price/costs squeeze" affecting the fishery. Its findings reflected confidence in stock rebuilding and forecast annual landings of 400,000 t (metric tonnes) by 1987 and 550,000 t in the long term (Kirby [1983: 242] cited in Finlayson [1994: 8]). The optimistic projections of the Kirby Report, assisted by various federal and provincial government incentives, encouraged heavy investment and expansion in harvesting and processing capacity. Finlayson points out that these optimistic projections failed to reflect the significant uncertainty of the stock assessment process, and they later became discredited (1994: 8-9). Landings increased through 1985 but then remained static through 1987 in spite of increased fishing effort. Increased catches in the offshore sector in this period were offset by declining catches in the inshore fishery (Finlayson 1994: 9; Harris 1990).

As catches declined in the inshore fishery, the Newfoundland Inshore Fisheries Association (NIFA) commissioned an independent investigation of DFO stock assessment. This produced a report (Keats 1986) based on DFO data that was highly critical of DFO stock assessments, arguing that these had consistently overestimated the stock biomass. Finlayson (1994: 37-39) describes the surprise and hostility with which DFO scientists responded to the Keats Report. They were surprised that the "science" was questioned, as it was generally held to be less prone to political interference than allocational aspects of fisheries management. The DFO attempted to dismiss the Keats Report as "pseudo-science written to support the political agenda of the Newfoundland Inshore Fisheries Association" (Finlayson 1994: 38). Finlayson (1994: 39) commented on the "unusual antipathy between Keats and the DFO scientists" and suggests this was because:

> *Keats (and other university 'academic' scientists) are seen as having the freedom to be critical or controversial in their claims with no responsibility for their consequences or for proposing constructive alternatives. DFO scientists, on the other hand, have very little individual freedom – at least with respect to stock assessments and management recommendations. The Department's policy is that the assessments and quota recommendations should be presented as a unanimous consensus. Any dissenting opinions or criticisms must stay within the Department and may not be publicly expressed. Further, DFO's scientists are collectively responsible (both institutionally and morally) for the consequences of the advice which they are obliged to provide irrespective of their individual opinions of its reliability (Finlayson 1994: 39).*

The findings of the Keats Report and the continuing decline in the inshore fishery led to growing doubts about the accuracy of the DFO stock assessments from 1986 onwards.

There was widespread and growing public criticism of the DFO and increasing political pressure on the federal government to address these concerns. It responded with the Alverson Commission. This was conducted for the federal Minister of Fisheries and Oceans by a group of eminent fisheries scientists from the UK, the USA and Canada. The credentials and reputations of the Alverson group ensured that their findings would carry more weight than the Keats Report (Finlayson 1994: 40).

The findings of the Alverson Commission were somewhat ambiguous. Finlayson (1994: 40) argues that "a careful, informed reading" of the report shows that the Task Group's analysis of the data (the same DFO data sets used by Keats) produced an assessment of the status of the stock that did not substantially differ from the conclusions reached by Keats. Finlayson notes the data analysis supported the position that:

> *...chronic, overly optimistic interpretations of data of questionable validity had resulted in a persistent underestimation of fishing mortality and an over-estimation of the growth of the biomass since 1977 (1994:40).*

The Alverson Commission's findings could, therefore, have been presented as strong criticism of the scientific effort of the DFO stock assessment process (Finlayson 1994: 41, 45, 46). Instead, the level of criticism expressed in the text of the report was toned down, to the extent that there were contradictions between the position as expressed in the Executive Summary of the report, and in graphical information relating to the status of the stock that was contained within it. Finlayson (1994: 46-47) suggests a number of possible explanations for this "toning down", including a natural reluctance by the Commission's members to publicly criticise colleagues as well as various 'interest based' explanations. He also noted that the Alverson enquiry was in a sense internal, in that it was commissioned by the federal Minister for Fisheries, who was, himself, the political head of the DFO.

The DFO presented the Alverson Commission's findings to the public as a vindication of the integrity of their science and the stock assessment process (Finlayson 1994: 40-42). The text of the report supported assessments of an increasing resource base[54], albeit at a more modest level than previous, overly optimistic DFO interpretations of the data. It also put forward the suggestion that environmental factors influencing the inshore migration of cod might explain the decline in catches in the inshore fishery, an explanation that conveniently relieved fishing pressure and those charged with its scientific management of responsibility for the decline in

[54] Finlayson (1994: 43) argues that this claim in the text is not supported by the data in the appendices which indicated the possibility that the stock was actually in decline at the estimated fishing mortality of F=0.40+.

the inshore fishery. The DFO released what Finlayson (1994: 47-48) describes as "simplifications" and "misrepresentations" of the Alverson Task Groups findings in a publication titled the *The Science of Cod* (DFO 1988).

While the DFO was able to put a positive spin on published versions of the Alverson Commission's findings, Finlayson (1994: 56-60) suggests that in the course of the inquiry the Alverson Commission had expressed a greater degree of "internal criticism" of DFO science than had been publicly acknowledged. Serious questions had been raised about the integrity of the stock assessment process, and subsequently the methodology was revised, producing much lower estimates of cod stock abundance.

In 1989 the revised stock assessment process produced markedly lower estimates of stock biomass (30-50 per cent lower), and in consequence, DFO management had to recommend a corresponding reduction in the TAC (Finlayson 1994: 53-59). This would have severe economic implications, particularly for the industrialised offshore trawl fishery. Now the offshore sector's voice was added to that of the inshore in attacking DFO stock assessment science. Paradoxically, their argument was the opposite of the inshore sector's long-standing claims. They claimed that the revised stock assessment methodology underestimated stock abundance and unnecessarily limited the TAC (Finlayson 1994: 101).

By the spring of 1989 the Minister of Fisheries faced a political crisis. Challenges to the legitimacy of the Department's management of the fishery could no longer be contained. His department's "official construction of reality was passing beyond criticism and becoming the object of ridicule and contempt" (Finlayson 1994: 63). The Minister responded to the deepening political crisis by initiating another enquiry, through the establishment of the Northern Cod Review Panel led by Dr Leslie Harris, a historian, and then President of Memorial University of Newfoundland. The terms of reference dictated that the panel pay particular attention to the science:

> *The panel will consider the scientific advice provided by the Department of Fisheries and Oceans since 1977 on the Northern cod stock and the current state and size of the stock, and make recommendations regarding stock assessment methods and means with a view to better forecasting the size, growth potential and behaviour of the stock in the future (Harris [1990: 11] cited in Finlayson [1994: 63]).*

The Harris Report is a useful reference document. It provides an overview of the historic, cultural and economic significance of the fishery to Newfoundland and so establishes a broad context for its inquiry. In addition to its detailed investigation of the scientific effort

applied to Northern cod management, it discusses other interrelated matters affecting the fishery and its resource base. These include resource competition between the inshore and offshore fisheries, poorly regulated international fishing on the continental slope outside the 200 nautical mile zone, and the complexity of a wide range of ecological and environmental interactions that impact on cod populations and which make attempts at stock modelling inherently uncertain.

The Harris Report brought political issues into the debate. It noted that prior to the advent of industrial fishing and scientific fishery management in the 1950s, the traditional inshore fishery had for centuries consistently yielded an average annual production of around 250 000 tonnes (Harris 1990: 1, 21-26, 129). The escalation of offshore effort based on trawling technology in the 1960s and 1970s had raised harvests to unsustainable levels, peaking at 800 000 t in 1968. This brought the stock to the brink of collapse and inshore landings fell to levels lower than any recorded in preceding centuries (Harris 1990: 2, 26). This was the situation that led to Canada's push for extended jurisdiction in 1977 and the establishment of the science-based fisheries management regime with its emphasis on TAC as the principal management tool. Excessive optimism about the productive potential of the fishery under scientific management and Canadian control led to excessive investment in offshore trawlers and fish processing factories.

3.5.1 Criticism of the Scientific Process

The Harris Report was strong in its criticism of the DFO scientific effort (1990: 2-4). It found, among other things, that DFO scientists had "failed to recognise the statistical inadequacies in their bulk-biomass model and failed to properly acknowledge and recognise the high risk involved with state-of-stock advice based on relatively short and unreliable data series" (1990: 2). They had failed to incorporate adequate "scientific management and peer review" into their processes and this had allowed shortcomings to go uncorrected (Harris 1990: 2, 3). Harris also noted that fishery scientists should not have been so dismissive of reports from the inshore fishery of declining catches, which, in retrospect, were indicative of declining stocks. In view of the large degree of uncertainty inherent in the stock assessment process, this should have served as "a warning flag demanding more careful attention" (Harris 1990: 3).

The Harris Report provided a comprehensive source of information on the Newfoundland fishery. Its perspective seems independent of the sectorial interests that may be seen as influencing the Keats and Alverson enquiries. Nevertheless, one cannot discount that it too

had an agenda. Finlayson (1994: 64) discusses the idea that the Harris Commission had an "unofficial mandate" to publicly humiliate the Science Branch in Newfoundland, but to avoid undue criticism of the inshore fishery[55]. In support of this view is the observation that following release of the Harris Report, the Science Branch was subjected to a barrage of public abuse and criticism, and the Minister and other members of the Government did not defend them (Finlayson 1994: 65, 99-100).

Finlayson (1994: 64-65) shows that the DFO believed the Harris Commission had an unstated agenda to "throw the Science Branch to the wolves", and that Harris demonstrated a bias in favour of the inshore fishery, but this criticism is poorly sustained. The Harris Report's portrayal of the inshore sector in a fairly positive manner might have been interpreted as an attempt to placate the outport people and as an exercise of political damage control, but it could also be regarded as a straightforward description of the inshore fishery, free of some of the prejudice that had often been attached to it. Harris did not need to demonstrate any bias or exaggeration in his criticism of DFO science. Clearly the Science Branch's position was deeply compromised. And given the state of political crisis over the fishery at the time, and the need by the political sector to deflect criticism from themselves in order to protect their own position, one can understand their abandonment of the DFO. So while Harris criticised DFO science his report also provided support for establishment interests and, notably, support for "science" as the only acceptable basis for management (Harris 1990: 149).

3.5.2 Defence of Establishment Interests and the Status Quo

Clearly, by 1990, the position of DFO science could no longer be defended. Arguably it had arrived at this position as a consequence of its subservience to a political agenda that had driven developments in the fishery for decades. However, it is reflective of the role of science in its relationship with the political sector that it should now be made the scapegoat for the resource crisis.

It could be argued that if Harris had an agenda, it was not to discredit science, but to re-establish its credibility, and in so doing, to re-establish the credibility of the industrial/scientific model of fishery development. This was a more subtle and complex task than merely finding a scapegoat for the immediate crisis.

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[55] The Trap fishery has always caught mostly immature fish, too young to spawn, a biologically dangerous harvesting approach but one that the Science Branch had never actually opposed (Finlayson 1994: 64).

Harris had implied that the traditional inshore fisheries based on technologies such as lines, traps and gill nets had proved sustainable for centuries. The report confirmed that the inshore fishers' perceptions of the status of the cod stocks, based on what has come to be termed "traditional ecological knowledge" or TEK, were more realistic than the stock assessments provided by DFO science (Harris 1990: 45). These findings might logically have been used to support alternative models for the fishery; models that might have gained additional credibility from the failure of the industrial model to deliver hoped for economic benefits and resource sustainability. But the Harris Report, as noted, emphasised the importance of the scientific method as the only acceptable management approach (1990: 149). In this it supported the establishment position and the *status quo.* Clearly reversion to a traditional "peasant fishery" would not have been acceptable to the establishment of interests served by the modern industrial offshore fishery. If Harris' defence of science and the industrial fishery, in spite of the shortcomings he had identified with the system, represented support for the *status quo,* it should not be surprising. One could argue that Harris, at that time president of a major university, a very significant and powerful institution within society, did not arrive at that position on the basis of revolutionary predilections. Leftwich (1983: 227) argues that those who rise to positions of power within the institutions of modern societies are selected from members of a small elite who have the "right" attitudes and values. So while Harris' defence of science as the only reasonable basis for management, the basis upon which the legitimacy of the industrial fishery stands, may represent adherence to orthodoxy, it was not consistent with the suggestion that his report was excessive or biased in its criticism of the work of DFO scientists.

3.5.3 Consistency of the Independent Stock Assessments

Finlayson (1994: 80) found that the Keats, Alverson and Harris Reports had reached "remarkably similar conclusions" in their assessments of the status of the stock in spite of their differing mandates, institutional sponsors and resources. He points out that this "congruence of findings strongly suggested to many interested parties that their constructions bore a closer correspondence to natural reality than did the claims of DFO". He then asks:

> *Why did DFO science, working from the same data bases as Keats, Alverson, and Harris and with vastly superior resources of every kind, persist in the construction of what is now accepted as an erroneous reality? Why did it defend that construction against competing alternatives to the point where the public and institutional authority of its knowledge claims and its effectiveness in management were severely compromised? (Finlayson 1994: 80).*

Finlayson sets out to find answers to these questions. His study explains "how" the "pure" science upon which the DFO prided itself produced outcomes that were inconsistent with truth and reality and considers "why" this occurred. The "how" aspect relates directly to analysis of institutional structure and function from an internal perspective using the analytical tools of the social sciences. The "why" takes things a little further into the realm of political theory with a more holistic perspective on the functioning of the institution within a complex political economy.

Finlayson (1994: 33-80) explores the role of error, uncertainty and interpretive flexibility in the construction of erroneous reality, noting the high degree of uncertainty inherent to the science of Northern cod stock assessment. This uncertainty arises from the difficulty of assessing the abundance of a fish that is migratory, with a range extending over an enormous area of ocean, and having a population that is affected by a wide range of factors. Uncertainty linked to the potential for error in the raw data is compounded by further uncertainty generated by the ambiguities and assumptions that characterise the models used to process it. The result of this uncertainty is that "data and models can potentially support a wide range of forecasts and estimates of current stock status" (Finlayson 1994: 33). Thus, inherent uncertainty in the stock assessment process provides the opportunity for "interpretive flexibility" which Finlayson defines as "the possibility of reading different but *a priori,* equally plausible conclusions into a single data set".

One can readily appreciate the tendency of the DFO, a government agency combining a scientific role with a political agenda, to use this interpretive flexibility to promote that political agenda. There was pressure to produce optimistic stock projections to support the push for extended jurisdiction in 1977, and the expansion of the offshore industrial fishery and the processing sector in subsequent years. There were also interests served by downplaying the degree of uncertainty inherent to the stock assessment process and projections based on it. These related to the inherent risk that acknowledgement of the high degree of uncertainty would undermine the credibility of the process and perhaps encourage challenges to it. This would have been likely given the allocational effects of TAC setting and the intensive political conflicts that characterised the fishery, as has been discussed.

But how were DFO scientists, some of the finest fishery scientists in the world, co-opted into participation in the production and defence of the erroneous reality that characterised stock assessments during the 1980s? The answer to this question reveals something about structures and mechanisms that operated within the agency and which served to engineer compliance from the scientists who worked there. Finlayson's research identified a number

of factors relating to the DFO's structure of reward and promotion that contributed to this situation (1994: 88-100), and he also found non-formalised mechanisms that served to discourage challenges to the flawed stock assessment process.

For one thing, access to the data upon which the stock assessment process was based, was limited to members of a fairly small group. It was not freely accessible, almost nothing was published and people outside of the group were discouraged from viewing the data (Finlayson 1994: 89). In other words, the process was not open to scrutiny, even by other scientists working within the DFO. Finlayson (1994: 90) notes the experience reported by Myers, a DFO scientist from outside the group, who, on the instructions of the Alverson Commission, gained access to stock assessment data. His analysis challenged the consensus position of the cod stock assessment group and he suffered for it, explaining "there are people who just hate me for doing that" (Finlayson 1994: 90). He "interpreted the proprietary treatment of data as a strategy to protect deeply-held personal and institutional beliefs" (Finlayson 1994: 92) and noted that the assessment group had developed tribal tendencies, protecting its own interests against outside challenges, and that the group itself enjoyed protection within the department.

If one accepts a Kuhnsian perspective to understand the behaviour of this group, it is possible to accept that its members genuinely believed in the integrity of their stock assessment processes and guarded their data as a natural response to protect what they saw as the truth from criticism and challenge. A normative scientific perspective might conclude that they guarded the data because they knew that the process was flawed and did not wish this to be exposed. There is a subtle difference. Either they were sustaining and perpetuating their own delusions, or they were cynical and self-serving, but in either case one might perceive that the group protected its own interests in terms of the power and the benefits that its role in the assessment process conveyed. One could also view it from the political-economic perspective of group theory as described by Olson (1965; 1982). Members of a group enjoying some privilege or advantage seek to limit membership in order to avoid dilution of the benefit. In this case it could be argued that group membership conveyed some benefit of prestige to insiders related to access to privileged knowledge or simply some non tangible benefits associated with the sense of participation and inclusion. However, such an argument is not very convincing in this case as stock assessment work does not seem to have been highly regarded within the Science Branch; it was rather seen as an arduous if necessary task which, although addressing the core issues of the institute's mandate, was less favoured than more "interesting" areas of research (Finlayson 1994: 100).

Sandeman, another of Finlayson's subjects and the former Director of the Science Branch, provided a different, perhaps more palatable explanation for the reticence in sharing access to data (Finlayson 1994: 93-95). Data forms the basis of publications, and within the DFO, a scientist's prospects for reward and promotion substantially depended on the number of publications he or she produced, just as it does in most academic institutions. Competition for rewards and promotion among scientists within the department generated a proprietary approach to the treatment of data. Thus the department's system of rewards and promotion encouraged secrecy rather than the sharing of information and knowledge, and this contributed to the failure to "produce useful, robust knowledge in support of their institutional mandate" (Finlayson 1994: 93). Finlayson points out that this privatisation of data that had been "collected by public servants at public expense" was instrumental in preventing the sort of scrutiny that might have produced better science (Finlayson 1994: 92). This second explanation is also somewhat unsatisfactory in another respect. While the reward and promotion structure might have discouraged data sharing prior to publication, it clearly provided incentives to publish. And, as already noted, little was published by the stock assessment scientists who "avoided forums where their knowledge claims could be challenged" (Finlayson 1994: 92).

Finlayson (1994: 103-113) also sought to understand how it was that the DFO had persistently ignored claims from the inshore sector that falling catches, from the late 1980s onwards, were indicative of stock decline. It is now well known that the inshore sector's perception of the status of the Northern cod stock bore a closer resemblance to reality than did the DFO's scientific stock assessments of the time. Set within the context of the conflicting interests of the inshore and offshore sectors, and the government's policies over several decades, which had favoured industrialisation and development of the offshore fishery, one can recognise the political motives at an institutional level for bias against the inshore sector. Finlayson revealed how this bias was perpetuated by mechanisms operating within the institution. There were a number of factors involved. One relates to the cognitive processes that characterised the inshore fishers' systems of knowledge about marine ecosystems. This "fisherfolk" knowledge is typically built upon a complex of unquantifiable and intangible inputs. Observation and experience are interpreted through a ménage of influences, which include folklore, myth, anecdote, intuition and other factors. Although this knowledge system is built on a history of hundreds of years of fishing experience by thousands of fishers, it is largely irreconcilable with the cognitive norms of institutional marine science with its emphasis on objective, quantifiable inputs (Finlayson 1994: 109-113). Even if the validity of this fisherfolk knowledge was accepted, it remains intractable to quantification and so to the methods of science, and it is therefore fundamentally

incompatible with a bureaucratic management system whose authority is based on the epistemological superiority of scientific knowledge systems (Finlayson 1994: 117-119).

In contrast to the relationship of irreconcilable conflict between science and the inshore sector, Finlayson notes that the corporately structured offshore industry "shares a similar approach with science to the collection, documentation, and evaluation of information and knowledge" (1994: 116-117). DFO scientists and the corporate managers of the offshore fishery spoke the same language and understood each other. In particular, the quantitative catch and effort data routinely collected by the offshore corporations for their own managerial requirements provided an enormous body of data that was available for free, in a form that was "tractable" to DFO's scientific and mathematical approach to cod stock modelling (Finlayson 1994: 105, 125). Over-emphasis on the industrial sector's catch per effort data and a failure to incorporate corrections to account for the continually increased efficiency of modern trawlers due to technological innovation was a significant factor that masked the stock decline.

Personal social affiliation and prejudice may also have played a role in the attitude adopted by DFO science in the conflict between the inshore and offshore sectors, and in its relationship with the protagonists (Finlayson 1994: 112). There is a long history of social division between the respectable middle classes of St John's and the inshore fishers of the outports. This social division was apparent in the exploitative relationship of the St John's merchant class and the outport fishers in the period leading up to the Commission of Government, and in government policies from this period onwards that served to perpetuate dualism (as demonstrated in the work of Brox [1972]) and which retarded the social and economic progress of the outports.

While today there is some romanticising of the traditional Newfoundland coastal fishing culture[56], in the past the official attitude towards the inshore sector has often been patronising at best, and at worst, derogatory. This has contributed to the maintenance of a negative stereotype of the outport people, characterising them as backward, and serving to undermine their social status. One would expect that the low social status of the inshore fishers would cause their views and opinions to be devalued in the eyes of those DFO

[56] The Harris Report (1990), for example, elevated the inshore fishing traditions of the outport communities to an important position in Newfoundland culture and society. An explanation for this subtle flattery, in contrast to a long tradition of government policies that have tended to generate a negative impression of the outports, may be provided by the view that an intended purpose of the Harris Report was to placate the inshore sector and help alleviate the political crisis surrounding the fishery collapse.

scientists who shared a closer social affiliation, views, values and outlook with the managerial class associated with the offshore fishery (Finlayson 1994: 111-112).

So in addition to issues of cognitive process, issues of social prejudice may help to explain the lack of regard by DFO science, in general, for the opinions of the inshore fishers in the critical period of the late 1980s. But as Finlayson explains, these factors were not universal within the DFO. He discusses the case, and perhaps it is exceptional, of a DFO officer who came from an inshore fishing family and had an affinity and worked closely with the inshore sector (Finlayson 1994: 112-117). This individual apparently suffered personally and in his career as a result of his "misplaced sympathies" with the inshore sector that were in conflict with the position of his employer, the DFO (1994: 15).

Institutional structures related to the "structural appraisal system" served to exclude the inshore sector's perspective from gaining influence within the DFO (Finlayson 1994: 121). These institutional structures are not clearly defined but from Finlayson's interviews with DFO scientists, there was clearly an awareness that it was dangerous to get too close to the inshore sector. Ambiguous references are made to "burnout" and the frustrations of trying to reconcile the conflicting perspectives of the inshore fishers with the hegemonic position of science, the industrial offshore sector and government policy. Several references were made to officers[57] who had suffered personally, and in terms of their careers, as a consequence of developing a sympathetic perspective with the inshore sector (Finlayson 1994: 115,121); "They lose their objectivity and inevitably come to a bad end..." Clearly there was a general understanding within the agency that there were no rewards, but rather serious penalties for individuals who adopted the inshore's perspective. There is nothing exceptional about this. Leftwich (1983: 224-234) and Saul (1997: 91, 95, 173-4) discuss in detail how conformity of individuals within institutions, and internal structures of power are maintained by mechanisms of punishment and reward. These are portrayed as essentially universal characteristics of hierarchical power systems, including those of resource management institutions in Western democracies. Finlayson's observations and interpretation of forces operating within DFO are entirely reconcilable with these explanations.

In the final analysis Finlayson (1994: 93) showed how the DFO had failed in its mandated mission:

[57] The references seem to relate to the case already discussed above but are made plural, i.e. officer becomes officers, as a rhetorical means of generalisation.

> *...to ensure that the highest standard of scientific information is available to the Government of Canada for use in developing policies, regulations and legislation regarding the oceans and aquatic life, and to other government departments, private industry and the public for use in planning and carrying out aquatic activities (DFO/4155 [1989:8]; cited in Finlayson [1994: 93]).*

Instead the Science Branch of DFO became complicit in the construction and defence of a false reality. It is no coincidence that this false reality served a national and provincial political agenda closely aligned to commercial interests of the offshore industrial fishery. This coalition of powerful commercial and political interests generated external pressures on the Science Branch, which were translated into its internal functioning.

Finlayson explains that in the course of his investigation into the causes of the institutional dysfunction of the DFO, he discovered no villains, nor any heroes (1994: vii). Individuals within the DFO were either led by a complex range of subtle and overt pressures and incentives to conformity with the perspective that served the organisation's interests, or they were marginalized and excluded from involvement in key functions. Finlayson showed (1994: 123) that scientists were induced into conformity by the system of rewards and promotion, and notes that the culture within the DFO and the training of fisheries biologists lacked any emphasis on development of a sense of social responsibility. Reading Finlayson's depiction of the internal functioning of the DFO brings to mind Thomas More's despairing analysis in *Utopia* of the futility of trying to provide wise and honourable council as a "councillor of kings" engaged in matters of public business, in a collegial environment that "would more readily corrupt the best of men" than be reformed itself (Logan and Adams 1989: 29), and his observation that it is wiser to keep away from matters of public business[58].

Hutchings, Walters and Haedrich (1997) reinforced Finlayson's findings. They argued that government control of fishery "science" allowed political and bureaucratic interference to distort the production of "scientific information" upon which management decisions are based and justified, and that this was a major contributing factor in the collapse. They made clear that their criticism was aimed at the *system* of management and not at individuals and they described how, in the years following the collapse, government control of DFO science limited the effectiveness of government-based research to contribute towards understanding

58 Finlayson's work also reminded me of a conversation I had in 1987, in Darwin, Australia, with a former Canadian DFO officer. This man had once worked in the Atlantic fisheries but had chosen a complete change of career and had no wish to have anything more to do with fishery management. He explained that "we were the enemy, right...I mean we were the bad guys...and all the fishermen just hated us". At the time I had no idea what he meant.

its causes. In particular, they described how this political interference promoted the argument that the collapse was due to environmental causes rather than to stock decline from over fishing, and listed "(i) government denunciation of independent work, (ii) misrepresentation of alternative hypothesese, (iii) interference in scientific conclusions, (iv) disciplining of scientists who communicated publicly the results of peer-reviewed research (that did not correspond to the official position being maintained by the government), and (v) misrepresentation of the scientific basis of public reports and government statements" (Hutchings, Walters and Haedrich 1997: 1204). The conditions of political interference in DFO science that Finlayson identified as causes of the fishery collapse were clearly ongoing in 1997 and they argued that the system of "government-sponsored fisheries science" had, at great cost to Canada, "failed to ensure viable fish resources and thereby sustain the fishing people and fishing communities" that depended on them (Hutchings, Walters and Haedrich 1997: 1208). They argued that the system should be restructured.

3.6 Discussion - Varied and Contradictory Explanations for the Crisis

Following the stock collapse in 1992 a variety of contradictory explanations were put forward. These reveal much about the conflicts of interests and ideologies involved in the fishery and the influence these have on shaping cognitive perspectives. Gaining an understanding of the interconnected causes of the crisis is facilitated by an interpretation of these diverse explanations within the context of the interests that they served.

3.6.1 The Cold Water Theory

In the wake of the 1992 moratorium the North Atlantic Fisheries Organisation (NAFO), and the Canadian Fisheries Resource Conservation Council claimed that the collapse was unexpected and could not be attributed to overfishing. Hutchings and Myers (1994) and Charles (1995; 1998), for example, note the initial DFO response had stated that the decline in stocks was largely due to ecological factors, primarily to temporal changes in water temperature. Several theories (critically discussed by Hutchings and Myers [1994]) attributed the stock decline to anomalous cold water conditions that caused increased mortality (Lear and Parsons 1993), reduced recruitment as cod affected by the conditions spawned in sub-optimal locations (de Young and Rose 1993), and migration as cod moved to deeper areas (Bishop *et al.* 1993).

These environmental explanations seemed plausible. As Johnston (1995) points out, the collapse of the great herring fishery of the North Sea and the Baltic that was the economic

foundation of the Hanseatic League has been attributed by some historians to a 1 degree Celsius rise in sea temperature. So there are precedents for blaming fishery failures on uncontrollable environmental factors. Environmental explanations would clearly have been attractive to the DFO by providing an alternative to overfishing as the cause of the crisis, and thereby absolving those responsible for managing the fishery from blame. However, Hutchings and Myers (1994) discounted these environmental explanations. They showed that water temperature was not associated with juvenile or adult abundance, or adult distribution with depth. They demonstrated that "harvests equivalent to those" of the decade leading up to the collapse "were sustainable in the nineteenth and early twentieth centuries in a considerably colder environment", and they concluded that the "collapse of the northern cod can be attributed solely to overexploitation" (Hutchings and Myers 1994: 2126).

Hutchings and Myers (1994: 2144) explain that harvests of Northern cod had "rarely been at sustainable levels" between 1962 and 1992. The view that the 1992 collapse was primarily due to government mismanagement and overfishing by Canadian vessels has now come to be generally accepted and is no longer credibly contested. Other factors, if involved, played only a secondary role in the collapse (see Mason [2002]).

3.6.2 The Failure of Science and Political Will

With overexploitation identified as the principal cause of the collapse, much of the blame fell on the DFO and on the federal and provincial political establishments. The politicians, as discussed by Finlayson (1994: 64-65), attempted to divert the blame towards fishery science, but those more sympathetic to the scientists could point out that it was the politicians who had refused to cut the TAC sufficiently in accordance with more conservative advice after 1989. By this time (as has been discussed) the structural inertia in the fishery, with its social and economic components, made it politically impossible to make the recommended harvest reduction; especially as the advice was based on what had, by then, become recognised as contestable and uncertain data. Both politicians and scientists, and the nature of their relationship, had underpinned the creation of an overly optimistic belief in the capacity and resilience of the resource, and an unrealistic confidence in the credibility of DFO science, and this combination had underpinned the buildup of this inertia. The blame could not be separated.

3.6.3 Overcapacity - Too Many People, or Too Much Capital?

Schrank (1995) argues that the origins of the Atlantic Canadian groundfish crisis of the 1990s stemmed from the repeated failure by policy makers to reduce or at least constrain the growth of capacity in the fishery, especially following extended jurisdiction in 1977. Harvesting capacity usually refers to the combination of labour and capital equipment in the fishery and these can often be substituted for each other. For example, the fishing capacity of a 20 metre trawler with a crew of three may equate to the capacity of 100 inshore fishers operating from small open boats using handlines and gill-nets. Processing, though, is another matter. The catch from both the inshore and offshore trawler fisheries could be processed in the same plants, and the number of people dependent on employment in the plants, added to the capital costs of the plants, is also a factor in the capacity of the fishery as a whole. This was Schrank's approach. He considers overcapacity in terms of the number of workers and capital that depended on income from both the harvesting and processing sectors of the fishery[59].

Overcapacity has arguably been an issue in the fishery since the 1850s. The substitutability of capital for labour in the harvesting sector has been the underlying factor in the unremitting conflict between "traditional" fishers and more powerful technological developments; seines in the nineteenth century, trawlers and draggers in the twentieth. This conflict gives rise to competing, often partisan views on which component of overcapacity is to blame. Some regard technology as the problem and blame the crisis on draggers and trawlers for overfishing the stocks on the offshore spawning grounds. Others argue that "too many people and too many boats were chasing too few fish", a situation blamed on the ease of entry to the open-access inshore fishery[60]. The inshore-offshore bifurcation was complicated because many fishing households, traditionally bound to the inshore fishery, had become increasingly dependent on jobs in the fish plants where dragger-caught fish were processed. This dependency, paradoxically, increased as catches and income from inshore fishing fell as cod stocks became depleted. In the processing plants, as in the harvesting sector, there is also some potential to substitute capital equipment and technology for labour.

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[59] There was significant gender division in the workforce, fishing in boats being almost an exclusively male occupation while women formed the bulk of the processing plant workforce.

[60] Blackwood's (1996) thesis, as discussed earlier, suggests that this was not the case – the inshore fishery was taking less fish as the stock declined; less than its allocated quota. It was the "regulated" trawler fishery, controlled by limited entry and quotas, that could continue to harvest large numbers of fish from the stock in spite of its overall depleted state.

Schrank (1995) avoids entering directly into the inshore versus offshore debate by treating overcapacity as a whole rather than dissecting it. But his central argument is that the collapse of the fishery was a consequence of repeated failure by policy makers to reduce the number of people dependent on the fishery, in both the catching and processing sectors. This view is bound up with acceptance of the orthodoxy of industrialisation – a view that was arguably the dominant policy-guiding ideology. It fails to consider an alternative view; to consider whether so many people could in fact be sustainably supported in the Newfoundland fishery if it operated differently; if a different set of economic drives directed policy.

Schrank identified the underlying problem of "uncertainty that characterizes both the market demand for fish products and the supply of fish in the sea", and noted a tendency for the industrial sector to respond to the unpredictability of resource supply, by expanding capacity so that it "could handle the peaks in supply, thereby inflating industrial overheads and reinforcing the inherent tendency towards over-expansion in the commercial fisheries" (1995: 288). The problem of excessive industrial overheads, far more than simplistically blaming the crisis on the "common property problem", explains why it is important to separate the human labour and industrial capital components of overcapacity, but Schrank does not explore the implications of this. Industrial capital often represents sunk-cost overheads, while labour, on the other hand, is often viewed as a marginal cost. If a trawler is tied up at the wharf, its overhead cost remains. For relatively little extra cost it can go fishing and cover marginal costs for crew and fuel even if the catch is relatively low. A labour intensive artisanal fishery has relatively low overhead costs but high marginal costs. Thus, it may be more sensitive to catch fluctuations. Also labour is often more flexible than industrial capital in shifting to alternative activities. This is frequently overlooked by those who argued that there were no alternatives to the fishery to employ the people of coastal Newfoundland. This may have been true so far as industrial employment is concerned, but (as discussed by Brox [1972: 10-13, 97-98]) there is a long tradition in the outports of subsistence activities contributing to household economies, and sustaining the population over times when the fishery failed.

The commitment to developing the fishery in accordance with a capitalist industrial model meant that labour would have to be displaced. This being politically untenable (within a democratic system), it had to be accommodated by economic growth, or else subsidised. There were many subsidies applied in the fishery, and many, including unemployment insurance and grants and loans for vessel and processing plant construction and operation were subsidies that promoted increased capacity and production; generating further pressure

for overfishing. In 1995 Schrank saw the crisis as an opportunity to restructure the fishery, "downsizing" the number of people working in the fishery from over 20,000 to about 5,000, though he speculated that the forces that had caused government to neglect necessary downsizing in the past might continue to do so. But the need to downsize is dependent on the orthodoxy linked to the industrial model. An alternative approach, to redevelop the fishery from the failed industrial paradigm and re-build it according to a new post-industrial model has not been widely countenanced; it would not serve interests that have become firmly established in the industrial fishery.

3.6.4 Economic Rationalism

Burke and Brander (1995) also discuss the problem of overcapacity, not so much as an explanation for the collapse of the fishery as to explain why its impact was so severe. They identify massive public subsidies to sustain unproductive fishing and processing industries as a key factor in the crisis:

> *for decades, the productivity of fishing and fish processing has been increasing, reducing the labour and capital required to deliver products. In a properly functioning market, mergers or consolidations would occur so that surplus labour and assets could be retired. Not so in the fishery (1995: 60).*

They identified the "common property problem" of the fishery and insufficient security and definition of private property rights as significant problems, as well as income support, particularly UI, which "served to attract and retain labour which could not otherwise have been supported by incomes from the fishery" (Burke and Brander 1995: 61). They identified a social cost to this:

> *most tragic of all, younger generations were lured away from education and real economic opportunity by the attraction of a life style consisting of a few weeks of work to qualify for months of state sponsored income. A much lower value came to be set on initiative and self-reliance, thus undermining the entrepreneurial spirit that self-sustaining communities must possess (1995: 61-62).*

Burke and Brander draw parallels between the political economy of the fishery and that of the Soviet Union, arguing that "common property was the basis of both ownership systems" (1995: 61). They suggest that a preoccupation with distribution, which underpinned income support to fishers, came at the expense of neglect for economic efficiency and increased wealth creation. Their prescription is to address the common property problem by introducing management systems based on individual quota. They also emphasise the need

to remove subsidies including capital subsidies for harvesting and processing, "subsidies to labour, especially UI", and "public investment in infrastructure, especially in harbour facilities, and in resource management" (Burke and Brander 1995: 63). They write from the perspective of economic rationalism, which considers the fishery as a commodity and economic rent producing system, rather than as a resource capable of producing a wide range of social, cultural, spiritual and material goods, to be managed to maximise the wellbeing of the community that owns it by tradition and geographical association. Their perception of the causes of the crisis and their prescriptions are very much at odds with the views of other researchers whose approach is more grounded in social sciences and who consider economic issues and the concept of sustainainability from a more holistic, community focused perspective[61].

3.6.5 Management Attitudes and Quota Based Management Systems

Charles (1995) discusses four sets of conservation-related "attitudes" that, he argues, contributed to the Atlantic Canadian groundfishery collapse. The first of these relates to the role of managers and the fishing industry, the relationship between them, and the limited extent to which issues of broader public interest in the fishery found inclusion within the narrow management perspective that served the interests of the government's fishing industry "clients". Charles describes the management of the fishery as a tension of the "spirit of free enterprise" attitude of the fishing industry, constrained by the management controls of the government that rested on the rationale of Hardin's "tragedy of the commons". He argued that the nature of this management environment caused the participants to adopt the roles described in Hardin's thesis. The regulations were built on the assumption that fishers operated only according to selfish, profit maximising interests. The "regulatory agencies typically took sole responsibility for conservation", and by excluding fishers[62] from management decision-making, left them "no other role than that of catching as

[61] "Coastal community folk – and especially women with family care responsibilities – who have lived on unemployment insurance over the winter for years come to see this as a necessary lifestyle that allows them to take care of community volunteer work, elder and child care and other priorities. Given an option to take on year-round work, they may refuse, preferring to reserve time for this other work which may be unpaid but is seen to be necessary and fulfilling. This is not tragic; indeed it may be a necessary approach to life in an increasingly crowded planet where paid work must be shared and government programs augmented at the community level by volunteerism and sharing. In this context, removal of the marginal income from employment insurance would cause real difficulty and force people out of rural communities where they have access to resources, and into periurban slums where they have none" (examiners note).

[62] Women and youth in fishing communities were even more marginalised and excluded from consideration in fisheries management arrangements by the management authorities and by the fishers themselves (see Grzetic 2004).

much fish as possible" and, "thus, Hardin's view of the world became self-fulfilling" (Charles 1995: 68).

Charles also comments on the degree to which the Canadian public, and public interests were excluded from decision-making processes:

> *...the government's principal fishery mandate lies not in serving the resource users, but rather in conservation and wise use of the fish, a natural asset owned by the Canadian public. While owners of valuable property usually have some say in its management, the attitude of government appears contrary to this. The Canadian public - those who should be viewed as DFO's major "clients" - have been given no role in fishery management, which has been typically restricted to government and industry (1995: 68-69).*

He also notes that coastal communities were not included in management decision-making and that government managed the fishery according to industry segments and gear type rather than with respect to locality. This institutionalised divisions among fishers, "viewing them not as residents of coastal communities but rather as members of disjoint special interest groups" and it ignored "the potential of coastal communities themselves to improve the efficiency of fishery management by increasing the level of moral suasion" (1995: 70).

Charles' second set of attitudes related to the uncertainty that is pervasive in fishery science, and asks whether the "burden of proof" should favour exploitation or conservation. Favouring exploitation in the past allowed TACs to be set that were too high, and failed to curb the use of potentially damaging technology such as trawl-nets or "draggers" (1995: 73). The third set of attitudes, the view that "conservation can wait", also favoured exploitation over conservation. "The belief amongst most scientists that groundfish were 'resilient' enough to withstand exploitation above target levels" (Charles 1995: 74), in the short term, contributed to serious delays in harvest reduction when stock decline became evident. As an example, Charles refers to the year 1990 when DFO scientists recommended a TAC of 125,000 tonnes be set, but the Minister set the TAC at 197,000 tonnes, a controversial decision, opposed by many in the inshore fishery who "felt this TAC was so high as to endanger the stock, and sought an injunction to overturn it" (1995: 75). This is an important point which relates to Charles' first set of attitudes as previously discussed, and discredits the common misconception of fisheries as systems in which all fishers are motivated by greed which must be countered by government management controls.

Charles' final set of attitudes relates to the faith that the system works; that the basic concepts and assumptions upon which the fishery management regime has been based are

sound. Charles questions these and suggests that radical restructuring of the fishery management system is necessary if future collapses are to be avoided. "Minor tinkering" and "a business as usual" approach will only, he suggests, lead to future failures (1995: 77).

"Blaming the ocean" for the collapse, Charles notes, is symptomatic of the attitude that the system works, and an attempt to defend it by deflecting the blame for failure onto environmental causes. Likewise, he explains that spreading the blame widely - the suggestion that all sectors should share responsibility for the collapse - also serves to deflect responsibility from the real problem areas. He points out that while "illegal and nonconservationist fishing practices were widespread" (1995: 79) they were not universal. These practices included quota-evading activities such as "dumping, mis-reporting, high-grading, illegal gear, trans-shipments, excessive effort, processor collusion and the like" (Charles 1995: 78), but many fishers "behaved ethically throughout", and called for conservation as their catches declined in the 1980s. Spreading the blame, Charles notes (1995: 79), "distracts attention from the more serious offenders, but it also benefits the management entities who failed to control the operation of these offenders. Furthermore, such an attitude serves to spread the pain of restructuring the fishery." It helps to justify cutting the number of fishers across the board, rather than penalising those who caused most damage, and rewarding those who exercised restraint and "lived within their resource means".

Charles is also critical of the much-repeated argument that simplifies the cause of the crisis to "too many people chasing too few fish". This argument is used to support policies to cut the number of fishermen as the means of achieving sustainability. He notes that the number of fishermen is irrelevant to fish stock conservation. "The key factors are catching power and catching methods, not the number of people" (Charles 1995: 79). The problem was "the failure of fishery management to predict and control the fishing effort exerted by a fleet with excess capacity" (Charles 1995: 79). Charles also notes the perversity, in terms of furthering conservation goals, of efforts to reduce the number of fishermen by removing "casual" or part-time fishers, those who exert the least impact on stocks, while rewarding those who fished most intensively on the declining resource.

While blame for the collapse of the fishery was attributed to "causes" such as environmental conditions and to the presence of too many fishers, Charles (1995: 81) notes that little attention had been paid to the "methods" that had been used to manage it. He considered that much of the blame for the crisis could be directed at the quota management system that was the basis of Canadian groundfish management. He noted that the system unavoidably

provided incentives for "anti-conservationist behaviour" and had inherent dangers due to scientific uncertainty and the impossibility of ensuring compliance[63].

Problems with the science of stock assessment, fundamental to quota management systems, have been discussed at some length. Quota management systems also provide incentives that encourage practices such as dumping, high-grading and under reporting, and generally encourage fishers to harvest more fish than allowed. These activities were rampant in the fishery and contributed to resource waste as well as overfishing. But quota management systems, noted for social and conservation problems, serve the corporatist style of industrial fishery management and, Charles notes: "little research has been undertaken on alternatives to this groundfishery status quo, and indeed, there persists a dominant view in the fishery, with respect to quota management, that the system works" (1995: 82).

Underwood (1995: 37) singles out the system of "single species quotas" that was "the foundation of fisheries management in Canada", as the root cause of the collapse. The management system became a forum for antagonistic interest pedalling in the negotiation and allocation of quota and saw a "general deterioration of the relationship between the fishermen and DFO" (1995: 40). The system generated incentives to cheat and to misreport landings, producing data that was worthless to be incorporated into theoretical management models that "have proven to be incapable of simulating the complexities of a fisheries ecosystem" (1995: 39). Underwood concludes that the management system failed miserably and that a "single species quota approach to groundfish management does not and cannot work" (1995: 43). He argues: "now that the Canadian experiment in management of groundfish through quotas has failed, and I challenge anyone who would still argue otherwise, we must look to fundamental reform of the way we manage our fisheries" (Underwood 1995: 38).

It is significant that the attitudes that favoured exploitation over conservation are linked to attitudes that favour economic concentration (serving vested interests over a broader distribution of access to resource wealth), and to attitudes that favour capital and the industrial fishery over the interests of the inshore fishery and the people of Newfoundland's coastal communities. These attitudes are linked to the "economic" rather than the "social" fishery paradigm. They are the attitudes that when embodied in a society's social, economic,

[63] The dependence of quota-managed fisheries on science and enforcement as the means to provide for sustainability was discussed in chapter 2.

political and cultural institutions cause it to behave unsustainably. They are arguably defining characteristics of unsustainable societies.

Charles explains that the root causes of the Atlantic Canadian groundfishery collapse can be attributed to the four sets of attitudes he identified. But where do these dysfunctional attitudes come from? What interests do they serve? What values and ideology are they drawn from? And what political and resource management culture do they arise from? And what, then, are the prospects for changing them? And what are the conditions required to achieve change? These questions are all relevant if sustainability is genuinely to take precedence over other sectoral political-economic interests.

Taylor (1995: 13) provides support for Charles' view that dysfunctional "attitudes" are involved. In addition to identifying the rapid advance in harvesting technology, the inadequacy of international conservation controls, and the limitations of science, he also attributes the crisis to "a cultural climate that emphasized economic growth above other values." Maguire, Neis and Sinclair (1995) also emphasise the role that policies driven by a myopic view of economics played in the crisis, while social concerns linked to conservation and a different sort of economics were ignored[64]. Matthews (1995b: 44) takes the analysis a step further, arguing that "the way in which we view 'nature' and the way in which we view such natural resources of the fishery are 'socially constructed' in terms of particular value orientations and the interests that these represent." He makes the point, grounded in Marxist political theory, that "it is inevitably the values of the 'dominant' classes in society which form the basis of state policy. To be sure, the choice of policy is likely related to the 'interests' of those who are in charge of the state apparatus" (1995b: 45).

Matthews discusses, with reference to the work of Thomas Kuhn, how "paradigms" are constructed that incorporate particular interests, first translated into values, and then translated into management models. Preferring the term "metaphors" to describe these management paradigms, Matthews explains how two conflicting "metaphors" existed in the fishery, and were fundamental to the question: did Canada want a "social" fishery or an "economic" one? "At the moment" he writes "it is relatively clear that those who favour an economic fishery are in the ascendancy, despite the fact that it was an emphasis on high economic gain which contributed significantly to the collapse of the fishery in the first place" (1995b: 49).

[64] For a discussion of ecophilosophy and the "construction" of nature see Hay (2002: 26-61).

Examining the values, which are reflective of the interests, upon which these competing metaphors were based, Matthews (1995b: 53) demonstrates that it was those that were associated with the social fishery metaphor, rather than those linked to the economic fishery metaphor, that also were closer to the basic assumptions and requirements of "sustainable development". The issue of equity and redistribution according to need, which is contained within the sustainability metaphor, was emphasised. In conclusion Matthews stressed that:

> *in sum, "sustainability" is about interests and not altruism, and about the needs of mankind rather than the needs of nature. Until that is clearly recognized and management systems are developed to regulate the* ***interests*** *involved, then the fishery - like the rest of nature - remains endangered (1995b: 57).*

It is Matthew's emphasis of the significance of interests that provides the important key to understanding past failures and future prospects for the fishery. But from the foregoing analysis it can be seen that regulating the interests involved would require that the fundamental political and power relationships of society would need to be reconfigured. This would clearly be resisted by those controlling the state apparatus and holding a concentration of power in an unequal society.

3.6.6 A Systemic Explanation – Social and Political Structures Within Newfoundland Society that are Incompatible with Sustainability

The foregoing discussion supports the case that Newfoundland's fisheries crisis is largely the consequence of a resource management culture that projects values based on underlying political structures and interests that are incompatible with sustainability. The history of Newfoundland and the fishery as discussed in relation to the work of writers such as Brox (1972), Alexander (1977), Cadigan (1999a; 1999b; 2001; 2002a; 2002b) and Sinclair (1985) provides additional support for this view and establishes that this social and political culture of Newfoundland (in which the political and economic disempowerment of outport people is linked to unsustainability in the fishery) is deeply rooted in its history. It has persisted through the transitions of government through various forms - merchant fiefdom-colony, dysfunctional representative government, the Commission of Government period, and confederation within the Canadian state. It has been the cause of recurring crises over the past century and a half in which political, economic, social and resource issues have been interlinked. This argument is not a novel one. It has a solid basis of support in Newfoundland folklore, and in the expression of this folklore in contemporary literature (for example, Wayne Johnston's [1999], *The Colony of Unrequited Dreams*). This basic argument gains strength and in turn provides validation for a similar case made with respect to resource management in Tasmania (Phillips, Kriwoken and Hay 2002), which bears

comparison to Newfoundland and will be examined in the following chapter. The basic argument linking sustainability crisis to historically entrenched socio-political factors is also strengthened if it can be demonstrated that this socio-political cause of resource crisis is not just one of several contributing factors, but is an underlying "cause" of other critical factors, these then becoming identifiable as "symptoms" of the fundamental problem.

Two key and widely acknowledged "causes" of the crisis were the failure of fishery science, and the buildup of excess capacity in the fishery. Finlayson's (1994) analysis of the failure of DFO science gives strong support to the position that this was a symptom of the politics of the fishery, and Wright (1997; 2001), Blackwood (1996) and others argue that the build up of excess capital capacity in the industrial sector of the fishery was due to policies favouring the industrial sector at the expense of the inshore fishery. This can be regarded as a symptom of a dysfunctional or "lopsided" political culture driving development policy in the fishery; one that served the vested interests associated with the industrial sector at the expense of the wider interests of the coastal populations. Understanding the underlying forces driving developments in the fishery provides a basis for interpreting the causes of fishery failure and understanding how these forces were sustained.

3.6.7 How Fisheries Dysfunction was Sustained

The failure of politicians to cut the TAC after 1989, as recommended by the revised DFO assessment process, illustrates the subservience of DFO science to political considerations in setting the TAC. By extension, it demonstrates the subservience of concern for sustainability to short term economic concerns, and thus the subservience of the common interest of all Newfoundlanders to the service of private, short-term interests favoured by the allocation of unsustainable TACs. It is acknowledged that the interests served had come to encompass a large number of people including members of inshore fishing households who worked in processing plants that serviced the offshore industry. They, more than most, would have experienced the tension caused by the conflicting interests of the inshore and offshore sectors. It is important to remember, in the context of the conflict between the inshore and offshore sectors (that essential underlying political issue of the fishery), Blackwood's (1996) observation that the setting of excessively high TACs served to allocate resources from the inshore to the offshore sector while a verbal pretence was maintained that the inshore sector received priority in allocation. Thus the interests of capital in the industrial sector could be served while pandering verbally to the concerns of the inshore sector.

The Minister for Fisheries could not bring himself to make the cuts recommended by the DFO in 1989-91 because of the social and economic costs this would impose on Newfoundland, and there was considerable uncertainty about the accuracy of the assessments. Too many people and too much capital were dependent on maintaining a level of income from the fishery that it could not sustain. The DFO had been an instrument in the buildup of this unsustainable capacity and, as Finlayson demonstrates, the agency over many years had misrepresented the status of the stock. It was thus complicit in producing and defending a false reality that served the interests of the industrial sector against those of the inshore fishery. Finlayson moderates his criticism of the 'individuals' working within the DFO, but he shows that the DFO as an 'institution' was dysfunctional in terms of its primary purpose – to provide sound scientific advice on the status of the stock as the basis for management of the fishery. Incentives and deterrents within the operating structures of the agency engineered consensus with the politically expedient falsehoods that were being perpetuated and served to discourage challenges to them. Individual scientists within the agency with the competence and integrity to assess the data and recognise that something was wrong, and to do something about it, did not have access to the data or were excluded from the inner circle that managed the stock assessment process, an inner circle in which consensus prevailed. Finlayson notes, however, "there are no villains in this piece; neither are there heroes" (1994: vii), these were ordinary people who were merely caught up in the workings of a machine that was the product of the political environment in which the agency operated[65].

3.6.8 Why was the DFO Dysfunctional?

The dysfunctionality of the DFO was symptomatic of the dysfunctional political and resource management culture in which it operated. A characteristic of this political culture is the tension between the demands of the populous inshore sector and those of the powerful vested interests of the capitalised industrial sector, a tension that induces a schizophrenic approach to policy.

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[65] Comparisons may be drawn to the accounting failures that came to light in the stock market corrections of 2001-2002. The culture of dysfunctional accounting that was pervasive in the corporate world was highlighted in the discrediting of the firm of Arthur Anderson, involved in the Enron affair. There might appear to be less latitude for interpretive flexibility in the keeping of company accounts, than in the (more or less) prosaic art of stock assessment science. Other than a few token prosecutions, few corporate accountants have been charged as individuals for a corruption that was systemic in the corporate world. So long as the myth of increasing stock value could be maintained, few complained and criticism could be dismissed. It was only with the reality of the stock market value correction (like the reality of fishery failure) that the crisis of accounting integrity became an issue of widespread concern.

In any polity, governing elites experience a tension between the conflicting pressures to share resources, and to concentrate and control them. These tensions are amplified in societies in which the contradictions of democracy and social and economic dualism coexist. They may be more evident in numerically small, insular societies where the interaction between rich and poor is, by force of geographic and demographic circumstance, relatively intimate. Thus, the pressure to resort to economic expansionism to avoid having to confront these tensions is possibly greater in a small society where they may be experienced at a more personal level.

Another expression of this systemic socio-political dysfunction in Newfoundland society can be seen in the way that public policy acted in the conflict between the interests of the inshore and offshore sectors. It was the cause of there being "too many fishermen and too many boats", or viewed from another perspective, too much technology and capital in the fishery requiring too much from the fish stocks and from the people of the fishery to sustain it. The overcapacity in the fishery and the dysfunctional overstating of the productive capacity of the stock were both symptoms of the same political and resource management culture, and each was also a contributing cause of the other. Overstating the productive capacity of the stocks was used to justify the buildup of excess capacity in the fishery; and once established, the excess capacity required that high TACs be allocated in order to sustain it economically, whilst unrealistically high stock assessments were required in order to justify the allocation of these unsustainably high TACs.

From this overview, overfishing is seen to be as much a consequence as a cause of unsustainability. All the causes of overfishing: compromised science, expansionist policies, overcapacity, too many inshore fishermen, and too much capital investment, were symptoms as much as they were causes of Newfoundland's fisheries crisis. If we ask why they occurred we approach an understanding of the roots of the problem, a problem that is not easy to define as it lies within a complex of subjective and qualitative characteristics of Newfoundland society.

3.6.9 The Politics of Over-Capacity, Scarcity, Dependence and Patronage

A number of writers have commented on the effects of the unemployment insurance (UI) system in distorting the development of the Newfoundland fishery. Neis (1999) argues that the UI system entrenched familial and social patriarchy in the Newfoundland inshore fishery. Brox (1972: 22, 30-33) and Sinclair (1985: 109-110) discussed how the UI system served as

a subsidy to the frozen fillet processors rather than to the fishers, Brox noting that Newfoundland fishers received only about one third of the price for their catch from the processing plants, compared to the price received by fishers in other developed nations such as Norway, Iceland and Britain. Schrank (1995) and Burke and Brander (1995), among others, have also commented on the effect of the UI system on maintaining excess capacity, specifically, too many people involved in the inshore fishery.

The UI system may be seen as a component of a complex system of patronage linking outport people, their communities, the processing corporations, the provincial government and the federal government. The UI system underwrote a politics of scarcity that was linked to the fish plant politics of the province. In order to qualify for UI payments, an individual had to work enough hours and accumulate enough UI stamps. (To qualify for the maximum level of benefit required the equivalent of about 10 weeks of full time work). In small outport communities where the fish processing plant might be the only potential employer, plant managers would have been in a position of considerable power. Not only could they control people's access to employment and income from work in the fish plants, they also controlled people's access to federal funds through the UI system because UI payments were linked to the number of hours worked in the plants. Income from UI could amount to more money than the wages received for the work required to qualify for it. Plant managers also had some capacity to accept or reject fish offered for sale by fisherman and could use this power to keep down the price, and, as Sinclair (1985: 123) noted (and previously discussed) fishermen would often sell fish in their own community for a lower price than they might have been able to get elsewhere in order to provide work in the local processing factory for other household members, neighbours and kin. The UI system, therefore, magnified the power that already resided in the hands of plant managers through their ability to control people's access to economic opportunity in isolated communities with almost no economic alternatives to the fish plants as buyers of fish and labour. The UI system, therefore, reinforced economic relationships that leant themselves to patronage and exploitation. In small communities where everybody knew what everybody else did and said there might be serious economic repercussions for individuals who incurred a plant-manager's ill will and it would be natural, in these circumstances, for resentment, distrust and division to occur.

Scarcity is the key to the exercise of power through control over the distribution of resources. In this case the opportunity to work in processing jobs or to sell fish in the fish plants represented economic resources. The plant managers could maintain scarcity of these resources by not putting on extra shifts to handle the early season gluts (a source of fisher discontent noted by Sinclair [1985: 137-149]). The threat of not accepting fish could be used

to put downward pressure on the price. Scarcity of work opportunities in the plants could be maintained in the same way. However, a local plant manager might develop a sense of affiliation with the interests of a particular community, but the corporations that owned many plants could play one community off against another. Overcapacity of processing plants allowed the corporations to shift work opportunities by trucking fish landed at one locality to a processing plant elsewhere. Thus, one community could be made to compete with another and this provided the corporations with considerable power over outport communities as a whole. The community itself might discourage 'troublemakers' from agitating to raise the price of fish or improve wages and conditions out of fear that all might suffer if the corporations shifted work, and the UI benefits that were tied to it, elsewhere.

The patronage-based power associated with control by the corporations of scarce work opportunities was linked to the political structures of the province, and to some extent to those of the federal government. The economic well being of an isolated outport fishing community could be greatly influenced by whether or not it had a processing plant as a market for fish and a source of employment and UI income. The provincial government's role in licensing and funding fish plants, and exercising political discretion over where they should be located, could clearly present opportunities for political patronage of the most basic kind (for example, if a community did not vote the right way in an election, some other place might get the fish plant). The Newfoundland settlement pattern of numerous isolated communities lends itself particularly well to fish plant politics of this sort. The corporations could also engage in this politics of patronage between the provincial government and outport communities by controlling plant operations. Hence, provincial politicians needed the cooperation of the corporations. This underpinned the relationship between the two where the provincial government provided financial and policy benefits to the corporations in exchange, presumably, for cooperation with provincial government political objectives in outport electorates (see Sinclair 1985: 117-126).

If a provincial politician could deliver a fish processing plant to a rural community; and if the plant could operate and employ people in the community long enough to qualify for UI (and this would need the cooperation of the company that ran the plant and could control the level of production); then the plant could attract a considerable amount of federal UI income to that community. Everyone would get something out of it. The plant workers would get wages and UI, and the fish corporations would get cheap, subsidised raw materials and, in effect, subsidised labour, not to mention various other provincial and federal subsidies. Politicians would presumably benefit through their ability to control, or at least influence, the distribution of this largesse. And the federal government would have paid for it all. The

question that arises is what was in it for the federal government? Why provide the financial resources? One explanation could rest on the value of the cultivation of economic dependency in the regions as a means of holding the Canadian federal system together. Separatist political sentiments are frequently expressed in Atlantic Canada. Quebec, as is widely known, with its pronounced cultural differences, has been fertile ground for a smouldering separatist movement that poses a threat to the cohesion of the Canadian federation. Separatist views are also fondly nurtured in Newfoundland where there is a strongly entrenched folk tradition of blaming social, political and economic troubles on exploitative colonial or federal domination. Newfoundland's confederation with Canada was only achieved by a narrow margin after a hard fought campaign. There were also factions that strongly supported the re-establishment of independent self-government, and others that favoured the continuation of British colonial administration (for a literary interpretation of anti-confederationism see Johnston [2000]). Brox (1972: 4) and other commentators have suggested that the principal benefit of confederation for Newfoundland was access to the Canadian welfare system, UI for outport fishers in particular. But a counterpoint to these benefits was the abrogation of control of Newfoundland fisheries to Ottawa and the Canadian Department of Fisheries and Oceans. In the wake of the 1992 collapse, and given the extent to which the DFO's mismanagement was implicated in the crisis, it is not surprising that there have been stronger claims for provincial management of the fishery. Cairns however (1995: 97), suggests that the "Pax Ottawa" with federal control over fisheries has some benefits for the smaller, island Maritime Provinces who would otherwise be more exposed to conflict over resources with the larger mainland provinces such as Quebec and Nova Scotia. Clearly, the benefits of transfer payments from Canada provide a strong counter-incentive to claims for independence. Over many years these transfer payments have served to maintain dependency of the provincial government, the fish processing corporations, and individual outport fishing families, on the federal system. However, these funding policies that served to establish and maintain economic dependency also contributed to the maintenance of dysfunctional social, political and economic structures in the Newfoundland fishery[66] that contributed to expansionist pressure on the resource leading, ultimately, to resource collapse.

[66] These same dysfunctions, it should be noted, are also evident in federal development efforts in other provinces and are not exclusively a feature of the Newfoundland case.

3.6.10 Newfoundland's Fisheries Failure Compared with Norway's Successful Community Focused Fisheries Development

Support for the theory that Newfoundland's cod crisis and the chronic difficulties that have plagued the fishery (and Newfoundland more generally) for much of its history is due to something systemic, some persistent, dysfunctional, structural or social factor that is characteristic of Newfoundland, may be found in comparative studies with Northern Norway. Northern Norway has much in common with Newfoundland, and some important differences, that make it a useful case for comparative analysis. Norway also suffered a crisis in the cod fishery in the late 1980s, but was more successful in taking the necessary action to avert a stock collapse such as occurred in Newfoundland (Apostle and Mikalsen 1995). Where the response to the impending crisis was too little and too late in Newfoundland, in Norway it had been prompt, decisive, and ultimately successful in averting stock collapse. Apostle and Mikalsen (1995) note that harvest cuts may actually have been even more severe than necessary to avert the Norwegian cod crisis of the 1980s. The Norwegian success was possible because the social, political, technical and economic conditions conducive to conservation and sustainable management were attributes of Norwegian society and its fishing industry.

Like Newfoundland, Northern Norway has many small isolated coastal communities, traditionally dependent on cod fishing supplemented by other economic and subsistence activities. The climate, flora and fauna and geology of both places are similar and impose similar limits on agricultural prospects. The structure of Norway's coastal fishery in the 1980s bore a superficial resemblance to Newfoundland's in that it comprised distinct inshore and offshore sectors. The Norwegian inshore sector was made up of around 17 000 small, one or two man vessels ("Europe's Fish, Norway's Lessons", *The Economist,* 19/10/96: 72), comparable to the 20 000 or so Newfoundland inshore fishers in the 1980s. There were also some larger purse seiners and long liners and a few large industrial trawlers. Like Newfoundland there was a natural conflict between the interests of the small-scale inshore fishers and the corporately structured industrial fishing operations. But unlike Newfoundland, where for decades a corporatist industrial model of fisheries development had been advanced by the policies of both the federal and provincial governments, often in ways that clearly compromised the interests of the outport communities and inshore fishermen, in Norway fisheries policy had been much more concerned with sustaining rural, coastal communities and had been more responsive to their interests.

The inshore, fjord fisheries have historically been the reserve of local populations using traditional gear such as handlines, longlines and gill nets (Jentoft and Mikalsen 1994: 290). While national policy favoured open-access, local populations have, since the 1950s, resisted the invasion of home waters by trawls and purse seines, and gear restrictions are enforced where necessary to conserve fish stocks (Jentoft and Mikalsen 1994: 292-293).

Apostle and Mikalsen (1995) note a number of important differences in the political and social cultures of Norway and Newfoundland that affect resource management policies and have a significant impact on shaping regional development. Unlike Newfoundland's industrial fishing and processing sectors which are dominated by one or two large, vertically integrated corporations, the Norwegian industry was characterised by hundreds of small, locally focused family firms embedded in small rural communities (Mariussen 1996: 27). In Norway there were various legal constraints that limited vertical integration. The marked class structure, symptomatic of dualism, that is a "clearcut bifurcation which divides direct or petty producers from the corporate sector" in the Newfoundland industry, is absent in Norway[67] (Apostle and Mikalsen 1995: 102). In Norway the differences between the more industrialised trawlers and the smaller-scale fjord fisheries "reflects differences in technology and gear types rather than deep-rooted cleavages between distinct social classes" (Apostle and Mikalsen 1995: 102).

The decision-making processes are also quite different in Norwegian and Canadian fisheries. Norwegian small-scale fishers are strongly represented by a national union with various affiliated bodies ("Europe's Fish, Norway's Lessons", *The Economist,* 19/10/96: 72). There is a well-developed collectivist political culture. Decision making is more dispersed and there is a longstanding tradition of consultation and representation of different groups in decision-making. This contributes to a culture within Norwegian fisheries of respect for the legitimacy of regulations. In contrast, Canadian fisheries policy-making has been much more hierarchical and unrepresentative of the views of a large part of the fisheries constituency. Among fishermen in Atlantic Canada there is a poorly developed sense of organisation and a marked culture of "distrust" of representative processes and decision-making outcomes (Apostle and Mikalsen 1995).

Norway is also well ahead of Atlantic Canada in supporting coastal communities with infrastructure and services such as health, education and welfare systems so that in Norway

[67] Apostle and Mikalsen (1995) also note that this social division is less pronounced in Nova Scotia indicating that this dualism is particularly pronounced in Newfoundland.

rural residents are not disadvantaged. Norway's small-scale fishers have been protected from excessive capital involvement in the industry by regulations that recognised the necessity to protect Norway's regionalised approach to social and economic development (Wise 1996: 144). This contrasts with Newfoundland where, for decades, government policies have favoured, albeit with limited success, concentration and centralisation of population and the withdrawal of services. Apostle and Mikalsen (1995: 109) note that in studies of regional development and local communities, Norwegians are more likely to question "conventional assumptions" about the desirability of centralized production, and they do tend to "criticize public policies, and discuss alternative scenarios". The culture therefore seems to be less politically constrained in Norway than in Newfoundland. Brox (2000) discusses how local democratic forces working through the national parliament were effective in resisting attempts to impose central planning in Norway's coastal regions in the 1970s.

In the 1960s Brox observed differences between Norway and Newfoundland (Brox 1972: 6, 27-36, 70-90), noting that various policies in Newfoundland were causing neglect and economic decline in the outports and fostering the entrenchment of a dual society in the fishery with a widening gap between the inshore fishery and the corporate industrial sector. He linked this political culture to a historically persistent pattern of political constraint on the development of Newfoundland's coastal communities, a pattern that regulated resource development to serve exploitative interests. These characteristics were symptomatic of and contributed to reproducing a political and resource management culture in Newfoundland that contained internal contradictions and was dependent on economic expansion, and federal subsidies, if it was to avoid confronting them. This ultimately made it impossible for the necessary restraint to be exercised in the Newfoundland fishery to avert the resource collapse of 1992.

The theory that Newfoundland's resource crisis was a consequence of a particular Newfoundland culture that shaped and was expressed in social, political and resource management structures and practices, and that was itself the legacy of deeply-rooted and historically entrenched forces that had shaped Newfoundland society and culture, in contrast to Norway where, with a similar resource base and dispersed settlement pattern, more sustainable resource management outcomes are linked to a different social and political environment, finds some support in the landmark work of Putnam (1993) on civic culture. Putnam (1993: 123-157) contrasted northern and southern Italy, and demonstrated that dysfunctional characteristics of corruption, the lack of civic culture, economic failure, traditions of patronage and clientalism, the failure of democratic institutions of government,

and incidentally, a preoccupation with property rights, persisted in societies (South Italian case studies) over periods of hundreds of years (Putnam 1993: 135, 154), even within a national institutional framework (the Italian state) that also contained societies (North Italian case studies) that were, by contrast, well governed, prosperous and enriched by wellbeing values associated with functional democratic institutions and well developed civic values. Putnam emphasised the importance of indicators of civic culture and the association of a healthy civil society with other factors such as effective institutional function. Putnam's linking of civic culture and institutional function with social and political characteristics rooted in history has been taken up by other writers studying the functionality of societies elsewhere. Young (1995), for example, made reference to Putnam's work to explain dysfunctional resource management in Tasmania and, in a similar manner, it provides conceptual support for the argument that the difference between Norway's apparently greater success at achieving sustainable fisheries in contrast to Newfoundland's failure may be due to social and political characteristics rooted in history[68].

There is a danger in accepting too wholeheartedly, explanations that lean toward historical determinism (or geographic determinism). This can establish a sense of inevitability and lead to apathy, acceptance and a fatalistic view of things[69]. While this is not an uncommon attitude in Newfoundland, it is not helpful in generating the necessary energy to try to change things for the better, and sometimes crisis creates the temporary instability that provides a window of opportunity for change. Nevertheless, there is also a danger in disregarding the long term influence of history on shaping society as this may lead to a failure to acknowledge the role of deeply-rooted cultural factors as the underlying cause of serious dysfunction, and the corresponding failure, therefore, to recognise the interests, structures and policies that encourage dysfunctional characteristics to persist, rather than addressing them and attempting to reshape a society to a form more commensurate with sustainability.

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[68] These issues could also be approached from a range of other research perspectives, for example, is the contrast with Norway due to the fact that Norwegians are "native" whereas Newfoundlanders are "colonists"? Or that Norway is more protectionist while Newfoundland more subject to a "wild west" free market ethic? Is the constraint on political culture in Newfoundland specific to that province or a more general attribute of "small islandness"? And if the latter then how have some other small islands succeeded in managing their fisheries relatively well?

[69] There is also a danger of complacency. In Norway the fishermen's union had been for years an effective force in resisting attempts by the Norwegian government to impose a quota management system that would have promoted concentration and inequality in the fishing industry. Quota were introduced as a temporary measure to manage a crisis, and then they became entrenched, as powerful vested interests who had benefited disproportionately from the quota system, while not being representative of the general membership, gained control of the national fishermen's union (Hersoug, Holm and Ranes 2000). Concerns with these developments were discussed in chapter 2.

3.6.11 Newfoundland's Fisheries Failure Compared with Iceland's Successful Industrial Fisheries Development

The apparent success of Iceland's development of its fisheries based economy has also been a subject of comparison with Newfoundland's failure (Jonsson 1995). Icelandic fisheries were developed along a more industrial path than Norway's community centred approach or Newfoundland's path of schizophrenic dualism. Modernisation and economic efficiency of production was promoted and the outcome was apparently successful, both economically and socially. This success is held up as a model by proponents of industrialisation and economic rationalisation in Newfoundland. But industrialisation of fisheries in Iceland was different to the process in Newfoundland for reasons that can be understood in socio-political terms. Structural transformation in Iceland was achieved in an inclusive manner, by incorporating the people and their interests in the process, rather than by coercion. Arnason (1995) identifies two important features of Iceland's fisheries success. He suggests that Iceland's independence meant that there were no economic subsidies from a large federal state to support the fishery economy. Thus, necessity provided the motivation to take hard decisions, such as the push for the 200 nautical mile limit, and the necessity to manage the fisheries efficiently in economic terms.

Jonsson (1995) and Arnason and Felt (1995a: 287-304) also explain some important differences between Iceland and Newfoundland. The Icelandic population, by comparison to Newfoundland's, is highly educated and literate and it is more mobile. People are happy to move from one place to another or from one coastal community to Reykjavik. They do not feel so embedded in, nor have such a tendency to cling to their particular outport community as Newfoundlanders do. They are less paroquial. Also Iceland does not have the same long tradition and history of fishing that Newfoundland has. Pastoral land ownership and sheep grazing historically provided the basis of the economy and political relations in Iceland. Until World War I fishing was mainly for local use, and of secondary importance. Iceland is also jurisdictionally simple compared to Newfoundland, with none of the complications of the Newfoundland/Canadian multi-tiered system of government.

If Newfoundland had developed economic spin-offs in fishery related industries these would have increased the value of the fishery economy to the province without requiring expansion of the harvest. While Iceland has been able to modernise its fisheries, market its products effectively, and develop fishing technologies that it can market to the world such as nets and computerised processing equipment, Newfoundland has not developed similar economic opportunities in the production of technological inputs to fishing and processing. The

Newfoundland fishery uses "Norwegian plastic tubs", nets and processing equipment designed and manufactured in Iceland, "American and German navigational equipment", and other processing equipment from Sweden and Germany (Felt and Locke 1995: 232).

There may be a downside to Iceland's industrialisation of the fisheries sector, linking industrialisation *per se* to threats to sustainability. Iceland's fleet has developed a fishing capacity far in excess of its own fishery resource base, and it fishes in waters all around the world, creating the potential to generate resource conflicts with other nations; Arnason and Felt (1995b: 22) note conflict in the Barents Sea in which Norwegian patrol boats were used to force Icelandic trawlers out of an area claimed by Norway. And, as discussed in chapter 2, concerns have been expressed about the way ITQ based systems have been introduced into the Icelandic fishery, effectively privatising fishery resources that are so important to the economic wellbeing of all the Icelandic people (see, for example, Eythorsson [2000]; Hannibalsson [2001]).

3.6.12 A Utopian Alternative for Newfoundland's Fisheries?

Comparison with Norway and Iceland emphasises the failure in Newfoundland to develop an economically viable fishing industry based on the cod resource, the failure to prevent unsustainable fishing leading to resource collapse, and the failure to manage the resource in such a way that it could sustain viable, healthy communities and lifestyles for Newfoundland's coastal populations. Many past critics of these failures have expressed the belief that they were not inevitable. Comparisons with Norway and Iceland suggest that there were no insurmountable problems of a technical, economic or resource nature that could not have been overcome if the right social and political conditions existed to guide resource management in a direction conducive to equity and sustainability. Many put forward solutions, often of a technical or policy framework nature that they believe would alleviate some of the causes of dysfunction, as they perceive them. Rationalists have advocated the simple solution of population reduction to address the resource problems of coastal Newfoundland. Schrank (1995), for example, divided the number of inshore fishermen by the total annual value of the fishery and showed that this could only provide a low average income. His solution was to reduce fishermen numbers in order to raise average incomes to a level closer to the Canadian norm. Researchers more grounded in the social sciences recognise a range of undervalued opportunities to sustain coastal communities. Researchers such as Brox (1972: 44-48) had a more holistic approach to economic analysis. Brox demonstrated that the quality of life of outport people, and indeed their standard of living if subsistence economic activities were factored into the analysis, was higher in the

outports where they had access to a range of resources, than that of wage earners (such as those working in the frozen fish sector on trawlers and in the plants) living in urban centres. Brox showed that this was true in spite of the cash incomes from outport fishing being a fraction of the cash wages for urban workers.

The importance of subsistence activities and access to a range of natural resources underpinned traditional outport life. It accounted for the resilience of outport communities and their ability to survive through the difficult economic times associated with periodic downturns in the fishery. Sinclair, Squires and Downton (1999: 333) have shown the continuing, or increased importance of these activities to household economies in the wake of the 1992 fishery crisis. Brox (1972), Ommer (1999), Cadigan (2002a; 2002b), Omohundro (1994), and others have all described the traditional contribution of subsistence production to outport household economies that was dependent on access to land and marine resources that were considered as "commons" by outport people. Forests provided timber for firewood and for building boats and houses. The land also yielded meat from moose, caribou and hares, and partridgeberries, blueberries and cloudberries that could be preserved in various ways. The sea provided cod, and also seals and other fish for household consumption as well as for cash sales. This "economic" productivity was often overlooked by state bureaucrats who tend to be concerned primarily with "financial" activity because this is the economic activity that the state can gain partial access to as a source of revenue. Subsistence activities also work against the development of consumer economies. Corporate interests and the state have a shared interest in undermining them by favouring the industrial appropriation of fisheries and other "common" resources by capital. It is not therefore surprising that bureaucrats had a tendency to view the cod fishery as the only significant resource of the outports. Newell and Ommer (1999b: 367) point out the shortcomings of state policies shaped by a focus on short-term economic growth rather than community economic development.

Brox (1972), Alexander (1977), Charles (1995; 1998) and many others have contributed to an alternative vision based on a different economic perspective. Charles (1998: 48) advocates adjusting harvest methods "to maximise benefits to society per fish caught, thereby increasing income and employment levels without killing more fish" and promoting "livelihood diversification by creating employment alternatives outside the fishery and by encouraging multi-occupationality among fishers, so as to reduce the reliance on fishing in coastal communities". Brox (1972: 80-84) and Alexander (1977) comment on the lack of development of value-adding opportunities in the outports and identify government policies as the cause. Charles (1995) comments on the perversity of cutting off the part-time or

casual fishers from access to the resource during attempts at rationalisation. He points out that they are the fishers who have the least impact on the stocks. Another consideration, if one is concerned about sustaining coastal communities and promoting economic diversification, is that the part-time fishers are likely to be those who have found or developed economic opportunities outside of the fishery. Their overall viability may nevertheless still depend on the contribution of fishing to the household economy. In terms of contributing to community sustainability and promoting economic diversity and resilience, three part-time fishers who also do other things will likely have greater value than one full-time fisher.

Those whose interests involve them in the debate over jurisdictional issues look to Iceland with its simple system, and argue for greater Provincial autonomy over fisheries management. They appeal to separatist sentiments, which have remained strong in Newfoundland, since the time of federation.

The unemployment insurance system has also received much criticism. While it brought cash income into coastal households it distorted social and political relations in the fishery and provided incentives that contributed to overfishing, to the build up of excess capacity in harvesting and processing, and arguably locked many into dependency and unproductive lifestyles in the inshore fishery by discouraged outport people from seeking education, new opportunities, or developing alternative economic activities to supplement fishing. If the financial transfer to the outports that occurred through the UI system had been managed differently, some of its damaging effects might not have occurred. The subsidies that encouraged overfishing were an obvious problem. The failure of government policies to develop in coastal and rural Newfoundland, communities that valued education, were confident and had a well developed civic culture can also be attributed, though less explicitly to the way that government financial transfers to the communities was administered. Literacy levels in rural Newfoundland were, for example, comparable to those of the third world and were a justifiable cause for shame (Dr. Arthur May, President Emeritus, Memorial University of Newfoundland, personal communication, 2002). The failure to develop communities able to engage effectively in decision-making that affected their livelihoods and their futures can be seen as an important underlying cause of resource management failure. While it is easy to criticise, especially from a distance, and to suggest utopian solutions based on theoretical models or comparative studies with other North Atlantic fishing regions, in practice the difficulties of developing Newfoundland's fishing communities have been a challenge and a source of frustration to the efforts of generations of competent and dedicated people. This serves to demonstrate the power and inertia of historically entrenched patterns

of social and political culture, and, perhaps, the difficulties of achieving change in a globalised, resource dependant society.

3.6.13 Plus ca Change? The Newfoundland Fishery in 2003

Debate in the mid 1990s emphasised the need for substantial structural reform to the fishery if the cycle of crisis was to be broken. That is not to say that there was agreement on the direction this reform should take. Those who adhered to the "economic fishery paradigm" advocated a substantial reduction in the number of people with access to the fishery and the further development of management methods based on market tools such as individual transferable quota. Adherents to the "social fishery paradigm" on the other hand, argued that this approach would serve to perpetuate the underlying structural, social and political causes of the crisis. Their arguments suggested the need for a very different economic agenda, but a difficult one to articulate in terms of simple, easy-to-grasp "solutions" to the symptoms of the crisis because the required reforms are substantial, complex and holistic in nature. More than a decade since the 1992 crisis there have been some significant changes in the fishery, yet in many ways there is also a sense that some of the fundamental structural characteristics linked to the crisis remain unchanged.

Unexpectedly, following the collapse of the cod stock, the value of total sea-fish landings in Newfoundland remained at about $200 million, and increased in the mid 1990s to an all time high of around $250 million (Roy 1997). While cod had collapsed, there was a boom in snow crab and shrimp fisheries. This was likely no coincidence. The collapse of cod probably reduced their predatory impact and competition for food with shellfish stocks, and there might be other, more complex ecological interactions involved (Vardy *et al.* 1998). However, the boom in shellfish landings did not compensate many of those whose lives were affected by jobs lost from the cod fishery (Roy 1997). Felt and Locke (1995: 219) estimated the Newfoundland fisheries employed only about 10 per cent the workforce in 1995 that they had in the 1980s. Crabs and shrimp require less processing than cod and so provide fewer jobs in fish plants. The harvesting sectors also provide fewer jobs. Shrimp fishing is very much an industrial process, more capital and less labour intensive than the traditional inshore cod fishery. The lobster fishery in the Maritime Provinces is a limited-entry fishery but it may, in time, become regulated by ITQ (Apostle, McCay and Mikalsen 2002: 116). The crab fishery is controlled by limited entry and quota, and relatively few fishermen had access to this resource. The boom in this sector made some fishers very wealthy but the benefits were not widely shared (McCay 1999; Cox 2003).

The crab and shrimp fisheries are not without problems. Vardy *et al.* (1998), in a report to the Provincial Minister of Fisheries and Agriculture and the Minister of Environment and Labour identified a number of problems relating to the price settlement mechanisms operating in the crab fishery. These included concern that prices paid to Newfoundland harvesters were lower than the price fishers received in other places in the Maritimes and in Quebec. The report also found that controllable quality factors were an issue of concern and suggested the need for a pricing system that recognised and rewarded high quality. It identified problems related to a lack of trust between processors and harvesters, and recommended the removal of constraints on the export of crab in unprocessed form, constraints which forced harvesters to sell to Newfoundland processors. The report also recommended that alternative sources of financing be investigated to reduce the dependence of fishers on financing provided by the processors. These issues of economic dependency of fishers on the processors, low prices, poor quality, and lack of trust; issues sometimes entrenched by regulatory constraints; are the familiar dysfunctional characteristics noted of the Newfoundland fisheries throughout the twentieth century as discussed above.

Familiar problems are also evident in the shrimp fishery. In a review of the industry, Vardy, Peters and Delaney (2002) found there was overcapitalisation in the processing and harvesting sectors; problems relating to quality and handling, and processing practices that were not as good as those of European competitors. Oversupply in European markets was the cause of a serious price decline, and the fishery had been shut down in July 2001 due to unfavourable market conditions caused by a glut. The report recommended the enforcement of quota limits to support prices, not for conservation reasons.

Ten years and more since the moratorium was first introduced, the Northern cod stocks have not recovered. In May 2003 the cod crisis was re-ignited by the closure of the relatively small cod fisheries that operated off southwest Newfoundland in the Gulf of St. Lawrence (Bartlett 2003; Dean-Simmons and Ryan 2003; Musseau 2003). Fierce political recriminations inflamed a media debate, with arguments reminiscent of those of the 1990s. But the scale of this crisis was less extensive. Fewer fishers remained in the fishery by this time, but those who did suffered an intense sense of loss that was widely shared in the gulf coast communities. Provincial politicians denounced the closures and castigated the Federal Fisheries Minister, Robert Thibault for the decision. But indications are that these stocks had dwindled to a very low level and the closure was necessary. Nevertheless, the question remains: why have Newfoundland's cod stocks not recovered?

One theory is that seals are to blame. McLaren *et al.* (2001) in a *Report of the Eminent Panel on Seal Management,* prepared for Fisheries and Oceans Canada, reported that harp seal populations increased substantially during the 1980s and early 1990s because of a reduced seal harvest. Higher harvest levels in Canada and Greenland from the mid-1990s appear to have stabilised populations at around 5.2 million. A view contained in the report, though one contested by some members, suggests that seal predation may pose a threat to the recovery of northern cod. There was also speculation that a reduction in seal numbers would likely lead to an increase in cod stocks, but this in the longer term might lead to reduced TACs for crab and shrimp (2001: vi). Stenson, Hammill and Lawson (1997) estimated the harp seal population in eastern Canada at 4.8 million animals in 1994, and growing larger. They estimated that seals consumed 88 000 tons (95% C.I. 46 000-140 000) of Atlantic cod off eastern Canada and 54 000 tons (95% C.I. 14 000-102 000) in the Gulf of St. Lawrence. They also consumed over a million tons of capelin in these areas (capelin are an important prey species for cod). It seems reasonable to speculate that seals may be exerting pressure on the depressed cod stocks and hindering their recovery.

In addition to predation from other species, human fishing activity has also continued to put some pressure on the stocks. Cod are taken as bycatch in other fisheries and anecdotal evidence suggests that misreporting of bycatch and deliberate poaching also occur, and with such ongoing pressure, it is perhaps no surprise that the stocks, generally, have not recovered[70].

3.6.14 Does Sustainability Matter? If So, to Whom Does it Matter?

Does sustainability matter? If the events of 1977-1992 were to be repeated would a different course be taken? If the cod *could* be restored to their former abundance tomorrow, would it be *allowed* to happen? The collapse of the cod fishery could, from some perspectives, be regarded as a beneficial event. It broke the nexus between the Newfoundland fishery and the outport communities that was based on centuries of traditional access, a connection that has vexed policy makers for generations. The collapse contributed to the transformation of the fishery by providing an excuse to separate most of the outport fishing people from access to the marine resources, and with the help of providence in the form of booming shellfish stocks it served the transformation towards a more modern, industrialised industry, and one that is based on private property rights as in the case of the quota based crab fishery. Crab

[70] These anecdotal observations were based on casual discussions with people in St John's during September 2002.

and shrimp fishing interests would not want to see the cod recover if this would reduce productivity of these fisheries and the financial value that has come to be associated with rights of access to them. And if the cod were to recover tomorrow, would Newfoundland be flooded by tens of thousands of returning natives, demanding a resumption of traditional outport lifestyles linked to the cod fishery? This prospect would not appeal to those interests that benefited most from the collapse[71]. From their perspective, it might be better if the cod did not recover too soon[72], at least not before the cultural traditions and the legitimacy of the claims of the coastal people to access to the fishery have had time to die. And what of the seals? Are their populations out of balance, and their predatory impact preventing the re-establishment of cod to their normal role in the North Atlantic ecosystem? Should they be severely culled? Or are they keeping cod stocks under control, protecting shellfishing interests from the potential depredations of rebuilt cod stocks? Seal culling is always controversial. It would not be surprising if shellfishing interests adopted a "conservationist" stance on the issue if they believe that large numbers of seals have an ecological impact that serves their interests. The sustainability of the cod fishery did not and does not matter to everyone. It probably matters most to people with a link to the traditional outport cod fisheries. Many of them are among the tens of thousands of Newfoundlanders who have emigrated from the island to seek new lives in Toronto, Alberta and British Columbia in the decade following 1992, reducing the total population of Newfoundland by 12 per cent (Simpson 2003); but will the next generation, reared in these places with their greater diversity of opportunities, be grateful, thirty years from now, that the cod collapsed and freed their parents from dependency and limited expectations in isolated outports? But from a broader perspective the collapse of the Newfoundland cod fisheries also matters to the rest of humankind - those not affected by local Newfoundland interests, but who recognise that the failure of the Newfoundland fishery represents the failure of a part of an interconnected system upon which all life and, ultimately, human wellbeing on this planet depends. Belief that the failure of a part of this system may throw increasing pressure on the remaining parts, justifies concern by humanity in general about the failure of the Newfoundland cod fishery.

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[71] The collapse and subsequent non-recovery of the cod has also played into the hands of petroleum interests active in the former fishing grounds, allowing for seismic testing, drilling and pollution that might otherwise have been more heavily resisted. The appearance and rapid expansion of the oil and gas sector immediately after 1992 is not a mere coincidence.

[72] A colleague (Denbeigh Armstrong, PhD candidate, University of Tasmania, personal communication, 2003) reported an incident she observed in 2002 aboard a lobster fishing boat operated from Prince Edward Island that may reflect a lack of interest in cod conservation by people with shellfishing interests. When a fairly large cod was brought up in a lobster pot, it was removed and allowed to flop and gasp on the deck. The fisherman, apparently motivated by my colleague's concern for the cod said something like "you want to see it go back in the water, don't you?" and then pushed the fish overboard; apparently more out of consideration for my colleague's wishes than for the wellbeing of the cod stocks.

And the failure adds to the mounting evidence of humanity's seeming inability, in some circumstances, to resist the tendency toward unsustainability.

3.7 Conclusion

The aim of the chapter was to explore the causes of the Newfoundland fisheries crisis of the early 1990s and, in particular, to examine how broader historical and social factors may have contributed to it. In the years following the moratorium it was clearly established that the collapse was caused by overfishing[73], but a closer examination of the underlying causes of overfishing reveals a complex of interconnected factors, and the tangled interlinking of causes and effects permits differences of interpretation, focus and priority. For example, overfishing might be blamed on overcapacity, and the buildup of overcapacity blamed on the errors of fishery science. Alternatively, reversing the order of cause and effect, the errors of fishery science could be regarded as a consequence of excess capacity in the fishery, which generated the political pressures on the science branch of the DFO to produce models that supported unsustainable levels of harvest. Both explanations are correct, or at least partially so to the extent that simple linear pathways can explain complex systems. Complicating matters further, there were also different perspectives on overcapacity, some emphasising capital and advances in fishing technology and efficiency as the cause of a problem that others perceived in terms of "too many people". There were also many other factors involved including the unemployment insurance system, jurisdictional issues relating to confederation with Canada, the hegemony of the economic/industrial fishery paradigm and the structural and economic forces that flowed from this, and the dysfunctional attitudes (with respect to conservation) that were engendered in fisheries managers, corporations and among (some) fishers themselves. Many of these "causes" are also symptoms of other conditions and this suggests that one needs to look further in order to discover the root causes of the crisis and to understand why a seemingly modern, rational, democratic society, equipped with the latest advances in fishery science and centuries of accumulated experience in the fishery, should have failed, so decisively, to manage sustainably, the principal natural resource upon which its coastal communities depended.

Many of the issues introduced in chapter 2 were notable features of the Newfoundland fishery. In particular, competition between the inshore and offshore sectors was a central theme and one that was fundamental to other conflicts. This competition could be viewed in

[73] Though, as discussed, this was seriously contested in the aftermath of the stock collapse by several theories such as those attributing the collapse to environmental factors.

different ways; as conflict between labour and capital, conflict between small-scale fishers and the frozen fish corporations, conflict between the outport communities and the centre, and, perhaps of most significance, conflict over matters of ethos and ideology between the "social fishery" and the "economic fishery" paradigms. Similar conflicts are common, indeed they seem to be a natural feature of fisheries and other primary production systems worldwide. But societies differ in how they manage these natural conflicts, and these differences provide insight into underlying causes of the Newfoundland crisis. Comparison with Norway, in particular, lends support to the argument that the sustainability crisis in the Newfoundland fishery is linked to dysfunctional characteristics peculiar to Newfoundland itself. While the Newfoundland fishery was characterised by conflict, competition and inequality, the Norwegian fishery was (at least through the 1980s) characterised by cooperation, and a sense of ethics, community integrity and cohesion built upon shared and common interests, and this is linked to sustainable fisheries management in Norway. Jentoft articulates this concept, arguing that just as "viable fisheries communities require viable fish stocks", the reverse is also true: "viable fish stocks require viable fisheries communities":

> *Communities that disintegrate socially and morally are a threat to fish stocks. Overfishing results when the norms of self-restraint, prudence and community solidarity have eroded. It occurs when fishermen do not care about their resources, their community and about each other. Then, their ability to communicate among themselves, to agree and to cooperate is lost. Instead, their social relations are featured with opportunism, strife and conflict. Hence, their capacity for collective action becomes severely weakened (2000: 54).*

Newfoundland's failure could be linked to characteristics such as those discussed above[74]. But what was the cause of this community dysfunction? Fisheries policies, post World War II, had played a part in fostering social and economic dualism and conflict in the Newfoundland fishery in contrast to Norway where policies gave greater emphasis to furthering social equality and supporting community development in isolated coastal regions. This is salient to the "social fishery" versus "economic fishery" debate and as Jentoft points out, "economic" fisheries management systems that feature limited entry and private property rights tend to increase social stratification, and therefore contribute to undermining the structural characteristics that are essential to sustainability. But fisheries policies themselves are affects as well as causes; they are generally symptoms of the social conditions from which they emerge and they serve to reinforce established cultural and structural characteristics. Inequality and exploitation were persistent features of the fishery and its regulation from the sixteenth century onwards, and this provides the basis of an

[74] This quote can be regarded as referring to the Newfoundland fishery as a whole including the dragger and trawler sectors. As discussed in the section dealing with Cadigan's work (1999a, 1999b, 2001, 2002a), community ethics can and do appear in Newfoundland coastal communities.

argument that links Newfoundland's problems to historically rooted and culturally perpetuated socio-economic conditions. Cadigan (1999a; 1999b), for example, showed how policies that favoured capital expansion undermined conservation attempts in the nineteenth century. Alexander (1977) attributed the decline of the saltfish trade after World War II to the lopsided distribution of power in Newfoundland and to the inability, within the fishery, to organise cooperative action and effective policies. Brox (1972) identified inequality (dualism), and the regulatory "conversion barriers" that served to maintain it as a significant hindrance to social and economic development in the fishery in the 1960s. Sinclair (1985) described how policies in the 1970s and 1980s fostered inequality and conflict in the fishery and Wright (1997; 2001), Blackwood (1996), Finlayson (1994) and other researchers, as discussed in the chapter, showed how the "attitudes" of policy makers, which favoured the corporate sector while marginalizing the interests of outport fishing people, contributed to the fishery's collapse. Thus, there is strong support for an argument that inequality, deeply rooted in Newfoundland's history and maintained by cultural and structural forces, is a key underlying cause of recurring political, economic and resource management crises in Newfoundland, including the fishery crisis of the 1990s. But the origins of inequality in Newfoundland are inextricably linked to geography and the economic nature of the cod resource, which shaped Newfoundland's settlement pattern and the evolution of social and cultural traditions. A description of Newfoundland society from the 1960s noted:

> *The smallness and scattering of the population have influenced the Newfoundland character. Isolation bred individuality and self-sufficiency, but it also extracted a heavy toll. Customs changed slowly; 16th-century methods of fishing and fish-curing persisted; new ideas were rare and were resented; there was a marked weakness in co-operation, individualism of the most uncompromising sort having been nurtured in long years of near self-subsistence (Authors unknown [Encyclopaedia Britannica] 1965: 339)*[75].

What is lacking in this description is acknowledgement of the extreme economic dependency that has always been the pervasive condition of the Newfoundland fishery and the people who have lived by it. The richness of the fishery resource coupled with poor prospects for agriculture or other economic options has meant that since the 1500s the fishery had been dependent on exporting its produce to global markets and importing many of the necessities of subsistence and production. This dependence has made the fishery susceptible to exploitation by merchant capital engaged in global trade, and vulnerable to the effects of international trade relations. In chapter 2 the worldwide ascendancy of neoliberal

[75] Objection to this generalised description may arise from those with experience of long-standing and celebrated traditions of mutual assistance in rural Newfoundland. This encyclopedia quote may reflect a more distant, urban perspective.

globalisation was discussed, and many of its features have, for five centuries, been characteristic of the Newfoundland fishery. Social fragmentation, inequality, employment and income insecurity and poverty have been discussed in both contexts and linked to the individualism and lack of co-operation that undermines sustainability. The Newfoundland case study, therefore, supports the view that fisheries management policies that promote selfish interests, inequality and community fragmentation ultimately undermine the moral characteristics of a society that are essential prerequisites to sustainability. This key point will be explored in the following chapters with respect to resource management case studies in Tasmania and Pakistan.

Chapter 4

Tasmania:
Historically Entrenched Social Dualism and Resource Management with Reference to Lessons from Newfoundland

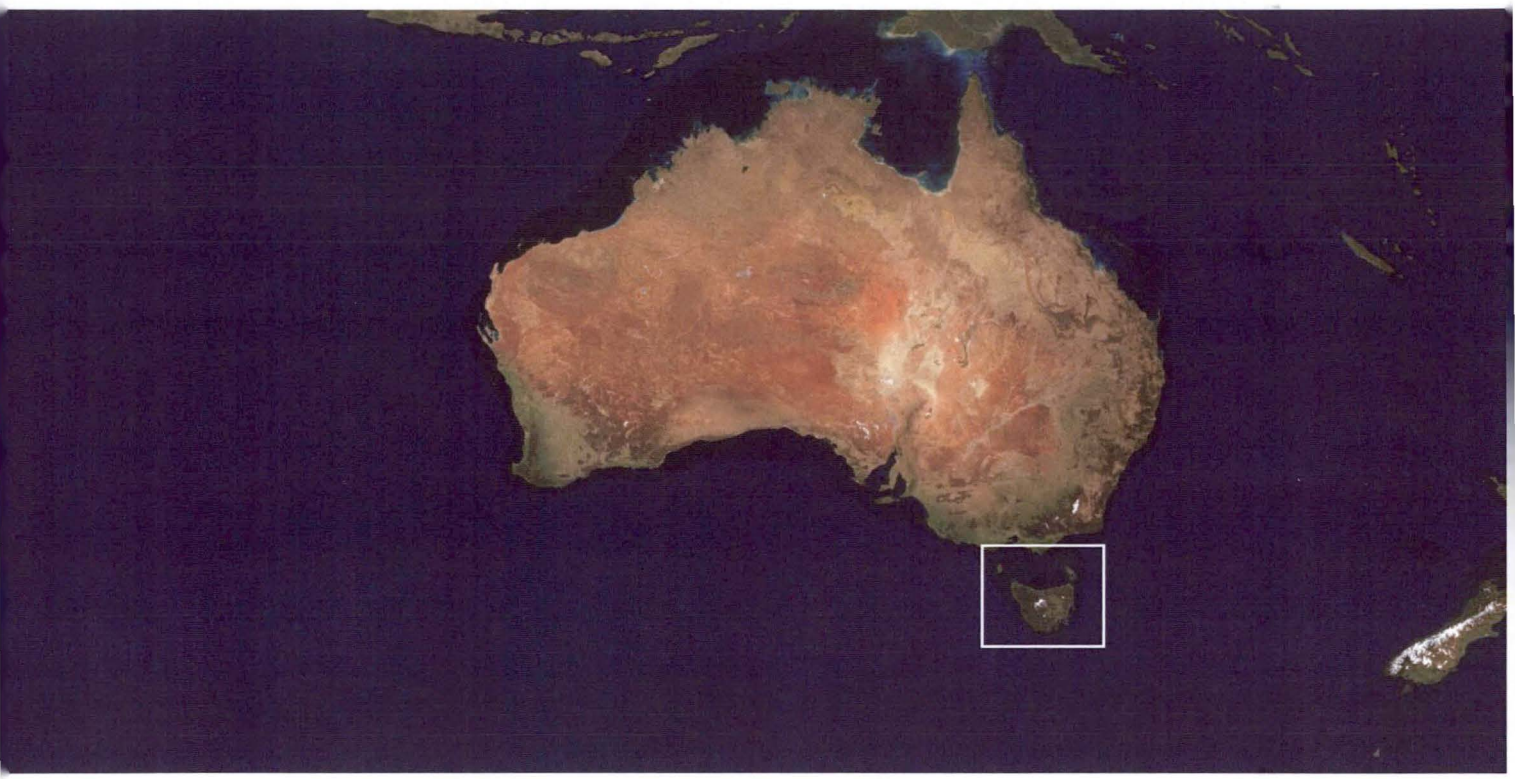

Figure 4.1 Map of Tasmania showing its location off the south coast of mainland Australia

Image source: NASA 2006

Map source: World Atlas Inc 2004

4. Tasmania: Historically Entrenched Social Dualism and Resource Management With Reference to Lessons from Newfoundland

Figure 4.2 Lobster fishing boats in front of the old Henry Jones warehouses, Hobart

4.1 Introduction

An argument presented in chapter 3 linked sustainability failure of the Newfoundland cod fishery to deeply rooted dysfunctional characteristics of Newfoundland society. Entrenched social dualism was identified as a key factor, the origins of which were found to lie in the long history of European settlement and to social and political structures that were associated with the way that its fisheries have been regulated. The analysis in chapter 3 touched on many of the interlinked issues discussed in chapter 2, and the interpretation of the causes of Newfoundland's cod crisis is supported by the work of researchers such as Jentoft (2000: 54) and Charles (1994) who have argued that the characteristics of a community - factors such as equity and cohesiveness and the ability to advance common over vested interests - were determinants of the ability to exist sustainably; to remain viable within the constraints of natural resource limits. These arguments are salient to the ongoing debate in fishery management between advocates of "social" versus "economic" fisheries management paradigms. Management models that emphasise economic efficiency may (it has been shown) generate social consequences, like inequality, that contribute to community dysfunction, resource management dysfunction, and ultimately sustainability failure.

The aim of chapter 4 is to examine marine resource management in Tasmania in a manner that lends itself to comparison with the Newfoundland case. To this end, Tasmania's settlement history is outlined and a number of similarities are noted with the history of Newfoundland. These relate at one level to the cultural evolution of both places as components of the British colonial system, but the comparison goes beyond this to examine the effects and causes of entrenched social dualism which, for different historical reasons, has been a particular characteristic of both places. The nineteenth century European settlement of Tasmania occurred through the establishment of a convict colony. This was an intensely stratified and hierarchical society, and governing institutions and patterns of resource distribution were put in place with the specific purpose of maintaining this social order. The chapter examines how social and political dualism was reinforced in Tasmania by regulation associated with an entrenched political and resource management culture. It demonstrates the persistence of this culture and illustrates with case studies how it is reflected in current resource management practices, and it shows how these practices compromise prospects for social, economic and environmental sustainability. The chapter, therefore, provides a basis for comparison (and validation by triangulation) of a key argument that emerged from the Newfoundland case study: that historically entrenched inequality was a root cause of sustainability dysfunction.

4.1.1 Structure of the Chapter

The chapter begins with a brief synopsis of Tasmania's settlement history, highlighting points of comparison with Newfoundland including geographic, cultural, political and economic features. The manner in which resources and people were controlled in the early years of settlement to produce particular features, structures, institutions and attitudes in the society that emerged is discussed with some examples. The post-settlement experience of Tasmania's Aborigines, similar in many respects to that of the Beothuk people of Newfoundland, is outlined, and the effect of convictism in establishing the roots of social dualism in Tasmanian society is briefly described. Some examples demonstrate how economic mechanisms, political restrictions and the social legacy of convictism served to reproduce and reinforce the social and political characteristics of dualism in Tasmanian society into the twentieth century. The chapter then considers current resource management issues. Tasmania's controversial forest industry is briefly discussed for the insight it provides into how the contemporary political and business culture operates in Tasmania with regard to management of large-scale natural resource industries. Then two case studies are presented that relate to marine resources. The first examines the management of Tasmania's rock lobster fishery and the socio-political effects of the introduction of a quota management

system in the fishery. The second examines salmon farming and pollution management in Tasmania's coastal waterways. It demonstrates how private interests predominate in resource decision-making, which compromises the integrity of the environmental protection functions of government resource management institutions. This, with reference to the Newfoundland case study, suggests that these cannot be relied upon to promote environmental sustainability.

4.2 The History of European Settlement of Tasmania and Development of a Resource Management Culture With Reference to Similar Developments in Newfoundland

If you take an imaginary straight line from St John's, Newfoundland and pass it through the centre of the earth it will emerge in the Southern Ocean, west-south-west of the island of Tasmania. Geographically located at almost the opposite ends of the earth, these two islands, nevertheless, share a number of characteristics. As noted in the previous chapter, much of this stems from their shared history of settlement within the British colonial system, and it has also been influenced by the geography and natural resources of these islands and the manner of their exploitation. The interaction of social and political factors within the resource management environment has also had an ongoing influence in shaping the societies that have developed in both Tasmania and Newfoundland.

Tasmania, generally conceived of as an island, is actually made up of one large and several smaller islands that lie on the southern edge of the Australian continental shelf. Separated from the Australian mainland by 150 nautical miles (250 km) of Bass Strait, the largest island is heart shaped, approximately 320 km long and 340 km wide and approximately 26,215 sq. mi. in area (compares to about 156,185 sq. mi for Newfoundland).

The European discovery of Tasmania (known as Van Diemen's Land until 1853) is credited to Abel Tasman, a Dutch navigator who first sighted the island in 1642. By this time the European fisheries in Newfoundland waters had been established for over a century. The extreme remoteness of Van Diemen's Land from Europe and busy transatlantic shipping routes meant that it would be another century and a half before it attracted much further interest from Europe.

Van Diemen's Land assumed greater importance in the eighteenth century during the escalation of conflict between Britain and France for power over global trade and the maritime supremacy upon which this depended (Blainey 1983: 28-29; Robson 1985: 12).

Several French and British explorers visited the coast of Van Diemen's Land, including Marion Dufresne (1772), Tobias Furneaux (1773), James Cook (1777), William Bligh (1788 and 1792), Bruni d'Entrecasteaux (1792-93), John Hayes (1794), George Bass (1798), Nicolas Baudin (1800 and 1802), and Matthew Flinders (1798 and 1802).

The British had established a convict settlement at Sydney on the Australian mainland in 1788. Motivated by concerns about possible French intentions for settlement of Van Diemen's Land, and in order to pre-empt them and to secure British control of the sea routes around south-eastern Australia, an expedition from Sydney landed on the River Derwent in southern Tasmania on 12 September 1803 (Robson 1985: 12). The party included three civil officers, eight soldiers, three free settlers and twenty-four convicts (Turnbull 1974: 19-22). In February 1804, the original settlers were reinforced by a larger party under the command of Captain David Collins made up of 178 prisoners, twenty-five marines and a "civil establishment" of about eight including officers, a chaplain, a surveyor and supervisors of prisoners.

The survival of the settlement was threatened in the next two decades by starvation, banditry and conflict with the Aboriginal inhabitants (Robson 1985: 13-22). In the first few years the colony avoided starvation by hunting kangaroos for meat (Boyce 1996; 2004). The needs of survival meant that convict discipline was relaxed. Convicts enjoyed considerable freedom and were provided with guns and dogs and encouraged to hunt. In the period 1806-8 most of the population of Hobart Town was involved in hunting to some extent and some became quite wealthy from selling meat to the government commissariat. While initially necessary for the colony's survival, this freedom of access to resources undermined the intended social order. Convicts with hunting as an option, evaded the less pleasant work of agricultural and livestock care for the benefit of an establishment that had monopolised ownership of land holdings. Boyce noted that commentators of the time complained of the idleness of the workforce, and the administration was concerned about the social implications of this egalitarian access to wildlife resources. When circumstances made it possible to do so, the situation was addressed by restricting dog ownership and curtailing demand for kangaroo meat so as to avoid a developing situation, one that the administration feared, where "the basic means of survival and source of wealth would not be privately owned, but freely available to all, and the whole system of social control and order, the foundation of privilege and power, would thus be undermined" (Boyce 1996: 42).

During this period a "bandit society" developed, made up of runaway convicts that could not be controlled by the colonial government (Robson 1985: 13-14). This outlaw sub-culture

roamed the interior hunting and engaging in primitive commerce. Their power was such, at least for a brief period, that settlers had to abandon their lands or come to some accommodation with the outlaws, and Boyce (1996; 2004) suggests that these free-spirited Van Demonians almost certainly engaged co-operatively with the Aborigines they encountered in the hinterland.

The bandit threat was eventually suppressed when immigration of free-settlers and soldiers had increased numbers to the point where they could mount an effective opposition (Robson 1985: 14). Boyce (1996) describes how, following 1817, Lieutenant Governor Davey banned commerce in kangaroo meat and ordered the destruction of dogs as a way to suppress the economy that sustained the free-ranging kangaroo hunting lifestyle. Enormous land grants were made to wealthy new immigrants, often the younger sons of British aristocracy, and Tasmania's grazing lands were occupied and developed for sheep and the profits to be made from wool. A period of harsh repression lasting several decades re-established British Government authority. Control over the resource wealth of Tasmania was appropriated by around 500 powerful, wealthy men. It remains in relatively few hands today, and the brief period of economic independence of the Van Demonians was ended (Boyce 1996).

4.2.1 The Treatment of Tasmanian Aborigines and the Beothuk People of Newfoundland Following European Settlement

The Tasmanian Aboriginal population at the time of European settlement is estimated at between 4000 and 6000 (Robson 1985:1). Abel Tasman did not make contact with Aborigines when he landed in 1642, but he saw indications of their presence. When European navigators visited Tasmania's shores from the 1770s their experiences with the Tasmanian Aborigines were mixed (Turnbull 1974: 6-13; Pybus 1991: 19-34). Du Fresne's party were pelted with stones and spears in 1772 and retaliated with musket fire. But Cook, in 1777, found the natives to be friendly and interested in the strangers. D'Entrecasteaux, in 1792, and Baudin, in 1802, found them extremely friendly, and exchanged gifts and fraternised with them to a significant extent. However, within a few years of permanent European settlement, conflict between Europeans and Aborigines over resources, such as kangaroo, intensified (Robson 1985:14).

Conflicts increased as the invaders ventured further inland occupying Tasmania's central grasslands with sheep. Aboriginal women were kidnapped, particularly by sealers in the islands of Bass Strait and this led to tensions. Conflict was most intense about 1823-4 when

Aborigines increasingly attacked isolated shepherds, and European settlers launched punitive expeditions in reprisal and shot Aborigines on sight.

An attempt was made to form a line of soldiers and civilians, known as the "black line", stretching across the island in order to "beat" across it and drive all surviving Aborigines into a corner where they could be captured (Turnbull 1974: 99-123). Only two Aborigines were caught, but this show of force and determination had an intimidating effect and Aborigines soon acquiesced to the overwhelming strength of European numbers and technology. The Governor appointed G. A. Robinson to journey through Tasmania and locate surviving bands of Aborigines, to win their trust, and to induce them to be relocated to Flinders Island in Bass Strait. After enduring many years of harsh conditions on Flinders Island 46 survivors were eventually allowed to return to their ancestral territories on the mainland. Trugannini, claimed "officially" to be the last Tasmanian Aborigine, lived out her final years with a respectable family in Hobart. An object of curiosity, she died in 1876 (Turnbull 1974: 1; Robson 1985: 45; Pybus 1991: 175).

The "official" demise of the last of the original "owners" and inhabitants of the land was a matter of convenience for the new order. It facilitated the disregard of contradictions within a society that occupied land as a consequence of the dispossession of its former inhabitants, while holding sacrosanct the concepts of property rights and inheritance.

Brief histories of the treatment, following European settlement, of the Aboriginal inhabitants of Tasmania and Newfoundland are quite similar[76]. The Beothuk people of Newfoundland

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[76] Sultzman (2004) estimates the Beothuk population at perhaps 2000 in 1500AD. In general the Beothuk avoided contact with European fishers active on the coast in the 1500s. This avoidance was probably the result of unpleasant experience, as the Portuguese Gaspar Corte-Real reportedly captured 50 Beothuk "man-slaves" in 1501 and, in 1507, Norman fishers took seven Beothuk captives to France (Sultzman 2004). There are accounts of friendly exchanges and trade between Beothuk and Europeans around 1610-12 (Marshall 2004; Sultzman 2004) but misunderstandings occurred. In 1613 a passing ship fired its cannon on a group of Beothuk assembled for a friendly meeting, and relations deteriorated.

In the 1700s the Beothuk found themselves increasingly cut off from access to coastal resources and hostilities increased between them and the Europeans and the Micmac allies of the Europeans who were settling southern and western Newfoundland. A vicious cycle of killings and revenge became entrenched and posed an enormous obstacle to any prospect of establishing friendly relations. Beothuk were often shot on sight. Yet in 1787 four shipwrecked French sailors were rescued and well treated by a group of Beothuk (Marshall 2004). Towards the end of the 1700s concerns began to be expressed about the brutalities inflicted on the Beothuk and attempts were made at conciliation. A reward was offered to bring a live Beothuk to St John's to assist in developing trust and communication. But these had little success in the face of centuries of entrenched hostility. In January 1811, an expedition led by Captain David Buchan encountered a group of Beothuk on the Exploits River in the Newfoundland interior. The situation seemed friendly and two hostages were exchanged on each side and Buchan returned to his camp to fetch presents. Unfortunately the

and the Tasmanian Aborigines both lived in small groups with extended tribal relationships and were seasonally nomadic, though heavily dependent on coastal resources (Robson 1985:1-24; Marshall 2004; Sultzman 2004). Both peoples valued red ochre and used it as a cosmetic to colour the skin. Both lived by hunting and fishing and used similar technologies. They used spears and bark canoes or rafts to hunt seals, shorebirds, fish and shellfish and used animal hides for warmth. Both people resisted European occupation of their islands, and in the 1800s, coinciding with the expansion of European settlement of Tasmania and Newfoundland, both populations dwindled from a combination of disease, warfare and starvation, when cut off from traditional food resources by European occupation, and both peoples ceased to exist in the distinctive culture that had been theirs prior to European arrival.

There was intermarriage of settlers and Aborigines in Tasmania as there was between settlers and the Beothuk of Newfoundland (Marshall 2004), and Tasmanian Aboriginality has survived through the bloodlines of these relationships (Pybus 1991: 175-188). But overall, the demise of both native peoples as a consequence of European occupation and resource appropriation followed a similar pattern, indeed, the colonisation of both places was part of the same outward expansion by the same people of the British empire, and the settlers of both places were motivated by the same values and attitudes and the same expansionary capitalist culture.

4.2.2 Tasmania's Early Seal and Whale 'Fisheries'

While Robson (1985) largely overlooks the seal and whale hunting industries that developed in Van Diemen's Land from the beginning of the nineteenth century, Blainey (1983: 99-115) discusses their vastly underrated importance to the development of the colony. The islands

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Beothuk suspected a trick and beheaded Buchan's two men, the two Beothuk hostages escaped, and the opportunity for peace was lost. At this time the surviving Beothuk population numbered only 72 people (Marshall 2004).

By 1823, completely cut off from the shore and their means of existence, the tribe was on the verge of extinction. Three women were found in a state of starvation and taken to St John's. Two of them died soon after but the survivor, named *Shanawdithit,* lived on with respectable families in St John's until dying of tuberculosis in 1829. Marshall (2004) summarises attitudes towards the Beothuk:
"Thus, in the course of just over three centuries attitudes towards the Beothuk have come full circle. In the 1600s they were thought to be harmless and potentially useful as trade partners; in the early 1700s, when hostilities had started, they were said to be dangerous and sub-human and were persecuted and murdered. From the late 1700s onwards at least some people acknowledged that the Beothuk had a right to the land and resources and should be protected; once the Beothuk had vanished from the island Newfoundlanders considered them victims of prejudice and cruelty".

of Bass Strait were the focus of sealing, an activity that occupied half of the 22 private vessels located in Australian ports in 1804. From 1800 to 1806 over 100,000 sealskins were landed in Sydney. By 1820 the seal populations had been reduced, by hunting, from thousands to a few, and the Bass Strait Islands were inhabited by escaped convicts who lived with enslaved Aboriginal women on kangaroos, mutton birds (a shearwater) and other game, and traded the skins of kangaroo and seal to passing ships in exchange for spirits and clothing[77].

By 1820 the seal trade had declined to insignificance due to the collapse of seal populations from overhunting, but the whaling industry was entering its most prosperous period (Blainey 1983: 99-115). Blainey identifies whaling as Australia's first profitable industry, exceeding the value of wool until the 1830s. The industry brought European and American shipping to the early colonial ports of Hobart and Sydney. It supported the development of merchant enterprises in these ports and it stimulated the development of shipbuilding in Tasmania. The whaling industry also differed from other colonial activities as only free men, not convicts or ex-convicts, could be employed on offshore whaling vessels, and they usually shared in the profits of the enterprise. The social, political and economic conditions of offshore whaling, therefore, differed markedly from land-based economic development in Van Diemen's Land, which was shaped by the constraints of the convict system.

Shore based whaling was pursued in coastal bays and estuaries around Van Diemen's Land. This 'bay whaling' targeted the southern right whale, a baleen whale, which in the winter months entered sheltered bays to give birth and nurse its young. Bay whaling required little capital. Two 30-foot whaleboats, some large iron pots for boiling the blubber, huts and a crew of 16-20 with provisions for three months were all that was required and could be outfitted for a capital outlay of three hundred pounds (Blainey 1983: 110). At its peak over 30 whaling stations operated each winter, sometimes with many rival crews competing for a rapidly diminishing resource. By the 1840s bay whaling, so profitable ten years earlier, all but ended as the resource collapsed. Whaling crews waited in the usual places but the whales no longer arrived in any number, so great had been the slaughter in previous years. The 'ruin of the fishery' was blamed on the practice of killing the calves in order to secure the cow whales (Blainey 1983: 113). This fishery and the seal industry provide early examples of unsustainable exploitation of Tasmania's marine resources.

[77] A similar existence, perhaps, to that of isolated fishers in Newfoundland outports at that time.

Following the collapse of bay whaling, offshore whaling for the less vulnerable sperm whale continued for several decades. Sperm whales were hunted on the high seas from large, sturdy vessels. Blainey notes that on Good Friday 1847, 47 whaling ships were anchored in the Derwent estuary off Hobart (1983: 113). Some of these ships were built and owned by Hobart merchants, others came from as far away as the Atlantic whaling ports of Nantucket and Salem in the USA. Hobart's whaling industry gradually declined over the nineteenth century as land-based activities came to assume greater economic importance.

4.2.3 Tasmanian History From the 1830s into the Twentieth Century

By the 1830s settlement had been firmly established in Tasmania and population increased rapidly[78], largely through the transportation of convicts from England and later from Ireland. During the 1830s about 2000 convicts (including 300 women) arrived in Tasmania each year. Free settlers also arrived and the population in 1836 was 43,000, "of whom 24,000 were 'free' (14,000 males and 10,000 females), and 19,000 convicts (17,000 males and 2,000 females)" but "some 75 per cent of the people of Van Diemen's Land were convicts, had been convicts or were of convict ancestry" (Robson 1985: 24).

Tasmania's economy was largely based on forced labour under the convict system. Convicts laboured under government supervision on public works, such as road building projects, or they were assigned as servants to free settlers. When their sentences had been served they obtained a 'ticket-of-leave'[79]. Robson (1985: 30) notes that some ticket-of-leave men lived as "semi-slave labourers" paid in tea and sugar by the 'truck system'[80], an existence that contrasted markedly with the life of the gentry who had received land grants of thousands of acres and attempted to mimic, in Van Diemen's Land, the lifestyles of the English aristocracy.

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[78] The first half of the nineteenth century is also the period of large scale British settlement of Newfoundland.

[79] "A Ticket of Leave (TOL) was a document given to convicts when granting them freedom to work and live within a given district of the colony before their sentence expired or they were pardoned. TOL convicts could hire themselves out or be self-employed. They could also acquire property. Church attendance was compulsory, as was appearing before a Magistrate when required. Permission was needed before moving to another district and 'passports' were issued to those convicts whose work required regular travel between districts. Convicts applied through their masters to the Bench Magistrates for a TOL and needed to have served a stipulated portion of their sentence" (Perth DPS 2004).

[80] The 'truck' system was also a notorious feature of exploitative merchant-fisher relationships in Newfoundland's outports until well into the twentieth century. As discussed in chapter 3 it was a system in which goods and supplies were provided on credit to fishers. Cash was seldom paid and debt or credit was carried on the merchant's books. The system provided a form of economic bondage which restricted fishers to selling their catch to a particular employer or merchant.

In the 1840s opposition to transportation increased and the last transported convicts landed in Hobart in 1853. The colony celebrated the event and as a symbolic gesture of rejection of its shameful convict origins, it renamed itself Tasmania (Robson 1985: 33).

Representative government was achieved in 1856[81] with the election of a two-chambered parliament. The Upper House, the Legislative Council, had the power to block any legislation. Its membership was restricted to "gentlemen of independent means" and voting restrictions limited the electorate to those with significant property. The franchise for the Lower House, the House of Assembly, was also limited, though less severely, to people with some material means (Robson 1997: 35). Such a system of government, through the blocking powers of the Legislative Council, guarded the interests of large landholders and was as effectively anti-democratic, if not more so, than its counterpart in Newfoundland at that time, which, as discussed in chapter 3, was controlled by the St. John's fish merchants and offered little representation of the interests of the outport fishers. The basic bi-cameral structure of the Tasmanian parliament[82] remains unchanged today, though the franchise has been significantly extended.

Tasmania suffered an economic crisis in 1893 when the bank of Van Diemen's Land failed[83]. The remainder of the decade was marked by economic recession and unemployment and the majority of Tasmanians supported the move to join with the other Australian states in a federation, which occurred in 1901. Tasmania, as a poor relation in the federation, was expected to be a net recipient of financial benefits from the arrangement. This has continued, with Tasmania, like Newfoundland within the Canadian confederation, receiving financial transfers subsidised by the more populous states with larger economies.

World War I (1914-1918) had dramatic social and political consequences in Tasmania[84]. Many Tasmanians enlisted and served overseas in defence of the British Empire, and after the war, many returned servicemen formed the core of a political organisation, the *Loyalty League*, that had overtones of fascism, and worked against what it saw as threats to the British Empire within Tasmania. These threats included people with German sounding names, Catholics, and Labor politicians and unions (Robson 1985: 109-116, 125-129). This

[81] Newfoundland gained full representative government in 1855.
[82] Newfoundland's original bicameral parliamentary system, with a Legislative Council dominated by the St John's merchants, proved to be dysfunctional due to discord between the houses and the two houses were, within a few years, amalgamated to form a single chamber parliament.
[83] Newfoundland's banks also failed at about the same time, as discussed in chapter 3, and led to Newfoundland's dependence on foreign investment.
[84] World War I also was significant in Newfoundland and other parts of the empire.

suggests that there was division, distrust and a lack of community solidarity within Tasmanian society.

Between World Wars I and II, Tasmania suffered two periods of economic recession, 1922-26 and 1931-35. The Lockyer Report of 1926 was the result of an inquiry into Tasmania's economic conditions and was launched in response to an appeal by the Tasmanian government for federal economic assistance; an appeal based on the argument that Tasmania's economic troubles could be attributed to the effects of federation[85]. The report contained some criticism of Tasmania's public administration for its lack of financial accountability, noting that the parliament and the public were excluded from the "precise facts" of government financial arrangements in a manner that would "admit of no satisfactory justification" (Lockyer 1926: 2). Lockyer identified heavy taxation and the loss of population due to emigration as contributing to Tasmania's economic difficulties, and he noted a pervasive attitude of pessimism which engendered a spirit of helplessness and dependence in the Tasmanian population[86]. He did acknowledge some economic impacts of federation, notably the Navigation Act that had come into force in July 1921, and which had increased the cost of freight and travel between Tasmania and the mainland. Being an island, Tasmania was particularly vulnerable to inflated shipping rates which impacted on tourism and exports. Lockyer also noted the heavy financial burden of servicing debt incurred to develop Tasmania's hydroelectric power system.

During the economic depression of the early 1930s, unemployment levels rose to 26 per cent. Times were hard but Tasmania did not suffer the extremes of economic and political collapse that afflicted Newfoundland in the early 1930s. Confederation within the larger Australian economy probably helped. Repudiation of overseas debt was debated, but vigorously opposed as traitorous by the RSSILA, an organisation of returned servicemen that fashioned itself as guardian of empire, the "memories of the Great War", and of public order. The RSSILA initiated a "civil patrol movement", to protect private property at a time when repudiationist sentiments were being voiced and, as Robson notes (1985: 129) some regarded it as a step towards the "establishment of a fascist New Guard".

In the late 1930s, in the lead up to World War II, economic conditions improved and tensions eased, but Robson portrays an entrenched social dualism within Tasmanian society.

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[85] This sort of appeal would be familiar to students of the relationship of Newfoundland within the Canadian federation.

[86] A similar sense of fatalism, helplessness and dependence is frequently noted as a characteristic of Newfoundland.

He notes that on the eve of war in 1939, there was, still living, a man who had been transported to Tasmania as a convict from England, while at the other end of the social scale:

> *there also existed in the island state a very wealthy class which wielded power through the Legislative Council especially and which was far from being unsophisticated. These people were the gentry who had occupied some of the best pastoral land in the world from the very early nineteenth century and had been the confident masters and mistresses of a virtual slave labour force of convict workers. Educated, cosmopolitan and cultured in comparison with their fellow Tasmanians, they and their descendents enjoyed economic independence and a sense of security verging on arrogance which enabled them to travel widely, to educate their children among their social peers and to insist on forms of address, deference and conduct which were the striking opposite of the usual Tasmanian egalitarianism. Though their power declined as parliamentary democracy was ushered in, the experience and survivals from the past meant that still their interests were ensured representation and notice at all levels and substantial power through the institutions of the state, in the form of legislative and private organisations such as clubs and informal networks (Robson 1985: 165).*

Robson's description of the Tasmanian gentry strikes a resonance with Johnston's description (1999: 21-42), through the character Prouse, of the 'fishocracy' of St John's, Newfoundland, with their exclusive private schools, arrogance, and colonial mimickery of the snobbery associated with English class distinction. At the lower end of the social scale, one can also see a parallel between the lives of Tasmanians of convict ancestry locked into relationships of dependency (as a consequence of denial of opportunities of independent access to resources) on the patronage of their social betters, as were the lives of Newfoundland's outport fishers locked into relationships of dependency with fish merchants and their agents, and later with the frozen fish processing companies as discussed in chapter 3.

4.2.4 Tasmania and the Convict Stain

Tasmania's history of settlement as a convict colony had a tremendous influence in shaping social and political attitudes in the state. A poster that forms part of a permanent display on the convict system in the Tasmanian Museum and Art Gallery in Hobart provides the following general description of the effect of convictism on Tasmanian society:

The Convict Stain

Of all the colonies, Tasmania had the highest proportion of drunkards, paupers, lunatics, orphaned or abandoned children, invalids and prisoners. The workforce was inefficient and unskilled.

In the 1880s these features were becoming less apparent; the influence of convictism was felt in more subtle ways.

- *To prevent ex-convicts from gaining power and influence, the free settlers gained a monopoly of elected political institutions; these were very conservative.*
- *Fear of violence and disorder persisted; each district was subject to a very high degree of police control.*
- *Fear of the moral corruption believed to be associated with convicts led to a social life dominated by snobbery and middle-class notions of respectability.*
- *The master-servant relationship was characterised by a high degree of control over the servant's behaviour, more like the assignment system than a contract between free men. Masters bullied their free servants as they had the convicts.*
- *Tasmania had the largest and best funded welfare system in Australia. Tasmania had more prisons and charitable institutions like orphan schools and insane asylums than any other colony.*
- *Probably because of the large number of ex-convicts, Tasmania had the most submissive and conservative working class in Australia, which offered little challenge to the social, economic and political domination of free settlers and their descendants.*

Many of these features may still be found in Tasmanian society.

The convict legacy was to have a profound influence on the ongoing development of Tasmania's social, political and resource management cultures. Control over access to resources was a priority for a colonial administration determined to maintain the established social order, during the convict era and later, as society made the gradual transition from one based on an economy of essentially slave labour under the convict system to the 'free' society that eventually superseded it (Boyce 1996; Robson 1997). For many decades into the twentieth century, the convict legacy continued to haunt Tasmanian society and was the cause of extreme social anxiety. Tasmanians were desperate to distance themselves from the 'hated stain' of links to a convict past (Reynolds 1969). This anxiety was of such intensity that people denied their relatives and constructed fake genealogies in order to hide convict

ancestries, and a veneer of priggish, conservative respectability papered over a deep-seated sense of social insecurity (Hay 2000). The result was a society that lacked the confidence to challenge authority and to engage with 'unrespectable' egalitarian, democratic or liberal political views. The political culture that developed was one of paternalism, patronage and vested interest (Hay 1992; 2000). It was a culture untouched even by democratic institutions because the preoccupation with respectability served to limit the emergence of an intellectual discourse of sufficient momentum to be politically significant. One might expect this political culture of patronage and vested interest to be reflected in resource management practices in Tasmania and in the culture of its resource management institutions, and indeed this tendency has been noted in regard to a number of Tasmanian industries (Hay 1977; Hay 1992; Young 1995; Phillips, Kriwoken and Hay 2002).

The conservative preoccupation with respectability, evident in political matters in Tasmanian culture, also extends to issues of sexuality and this is also linked to the convict past. Of all the Australian states, only Tasmania maintained laws against homosexuality into the 1990s. Critics of these laws condemned Tasmania on human rights grounds and grouped Tasmania with places like Malaysia and Zimbabwe on this issue. Tasmania's conservative upper house eventually conceded and allowed the laws to be repealed in 1996, but only after protracted resistance to the ongoing lobbying of the gay movement. The proscriptions against homosexual acts were clearly a carry-over from Tasmania's convict origins. In part this can be linked to Victorian conservatism, but regulation of sexuality is a general feature of totalitarian societies and especially so of prisons. The lopsided population, in which males greatly outnumbered females in Van Diemen's Land in the first half of the nineteenth century, meant that many males, particularly convicts who were of the lowest socio-economic order, would have had little prospect of finding female partners. Proscriptions against homosexual relations would, therefore, also contain an element of class control and thus serve a political purpose, though one not made explicit in regulations grounded in "moral principles". Fear of the "accusation" of homosexual practices could have undermined prospects for developing platonic bonds of solidarity among convicts that might have helped them to resist systemic exploitation.

But prurient scandal was not only a danger to the convicts in Van Diemen's Land. Sir John Eardley Eardley-Wilmot, governor of Tasmania from 1843 to 1847, fell victim to criticism that during his administration "sexual aberrations" were "practiced with impunity in the ranks of the convict labour force" (Robson 1985: 28). Sir John's enemies included the local establishment, the Bishop of Tasmania, and Gladstone, then British Secretary of State, who was concerned about the "moral state of the convicts" and the church's complaint that the

education system gave insufficient emphasis to "the beliefs of the Church of England" (Robson 1985: 28). A campaign of gossip and rumour undermined Sir John. He was said to "enjoy the company of young women" (Robson 1985:29) and the Colonial Office gathered ammunition and rumours to use against him. He was recalled, but died in Hobart (it was popularly claimed) "of a broken heart and ill-treatment at the hands of Downing Street bureaucrats" (Robson 1985: 29)[87].

Tasmanians, like Newfoundlanders, suffer as the butt of jokes that make inference to incest and inbreeding among the island population and its limited gene pool. The "two-headed" Tasmanian is a well known idiom and there is an element of truth behind the jests, myths and exaggerations. The noted interference with the genealogical record in order to hide convict ancestry might logically have increased the danger of inadvertent inbreeding among future generations. Sensitivity and insecurity about matters such as these may contribute to the Tasmanian sense of discomfort about talking openly on sexual issues and this reticence could reinforce the general impression that Tasmanian society is bound by a preoccupation with conservative, middle-class attitudes of respectability where sexual and social matters are concerned.

4.2.5 Monopoly and Vested Interest in the Tasmanian Economy

Gibson (1958) discusses how in the post World War II period, privilege and power in Tasmania, entrenched by the monopolisation of productive land in the nineteenth century, was maintained by monopoly over other economic resources in the twentieth. Shipping was a major concern. International shipping at that time was controlled by the "Shipping Conference" which was essentially a cartel of 22 British and foreign companies that divided up global shipping routes and fixed the rates (Gibson 1958: 4-6). All Australian trade was affected by the high cost of freight, Tasmania's particularly so because its economy relied largely on commodity export. Tasmania also suffered more than other Australian states from high fares and freight costs for coastal travel between the island and the mainland. Coastal shipping was controlled by another cartel, the Steamship Owners Federation, and no effective competition existed to keep down costs.

Gibson provides examples of how monopoly in the freight industry underpinned the extension of exploitative practices to other sectors. He explains, for example, the influence

[87] In July 2004, Richard Butler, the newly appointed Governor of Tasmanian resigned after less than a year in office, claiming that he had been undermined by a campaign of gossip and rumours in the media, and a lack of support from Parliament and even his own staff.

wielded by Henry Jones Limited, a Tasmanian company that came to dominate Australia's jam making industry and whose range of interests was so wide that it was said to be "in everything" in Tasmania (Gibson 1958: 17). Henry Jones wielded power over Tasmanian fruit growers, as it was the dominant shipping agent for most produce going in and out of Hobart. It controlled who could export their produce, and in what quantity, and could set the price charged for freight (Gibson 1958: 27-28). It also exercised monopoly power over Tasmanian hops growers through contracts to buy on behalf of the brewing monopolies (Gibson 1958: 29-33). Gibson also explains how a few companies, including Henry Jones, dominated Tasmania's timber industries. It was difficult to enter the industry and establish a small sawmill because access to the forest resource was restricted, the best areas having been "sewn up" by the large timber companies (Gibson 1958: 34). Gibson identified many other areas of the Tasmanian economy, including banking and the news media, that were characterised by comfortable monopolies, and which, in addition to exacting monopoly burdens on the economy, also limited public information and disproportionately influenced Tasmanian politics.

Hay (1977) describes how Tasmanian politics was characterised by a culture of corruption, patronage and vested interest, noting that behaviour that would have been considered flagrant corruption in other parts of the world was, in Tasmania, regarded as the normal way of doing business and conducting public affairs. These practices were so entrenched, so much the norm, that participants had no sense of wrongdoing about them and were in fact surprised when their conduct was brought into question. Hay (1977) also notes that Tasmania's democratic institutions did not function effectively to censure these practices.

With an economy constrained by monopolies, and a political culture characterised by vested interest, Young (1995) and Hay (1977) note the lack of civic commitment in Tasmanian public life, and a tendency to serve select private over broader public interests. In the following section of the chapter, the effect of these tendencies will be explored in relation to three resource management case studies. First, insight into Tasmania's forest industry provides an example of the way that politics and business interests currently operate in resource management in Tasmania. This provides evidence of the persistence of a particular resource management culture, which, it will later be argued, is also instrumental in guiding management of Tasmania's marine resources in a way that undermines community values linked to sustainability.

4.2.6 *The Tasmanian Forestry Industry: An Illustration of Tasmania's Resource Management Culture*

Compared to Newfoundland, Tasmania's capture fisheries are relatively small and not intensively industrialised. Forestry is the renewable resource industry that is perhaps most comparable in Tasmania to Newfoundland's cod fishery in terms of its social, political and economic importance[88].

Forestry has always been important in Tasmania. Enormous stands of old-growth timber, useful for building and refitting ships, were highly valued by Tasmania's European settlers. Timber harvesting was a cornerstone of the colonial economy. Today forest products support a billion dollar industry which includes fine craft timbers, construction timber, and most controversially, export woodchips used for the manufacture of paper products. Woodchips now account for over 80 per cent of the timber harvest (Fullerton 2004).

Opposition to clear-fell, woodchip logging of Tasmania's remaining old growth forests is a cornerstone issue for the Tasmanian Greens political party. Internationally renowned Tasmanian author, Richard Flanagan (2004a; 2004b) has also been an outspoken critic of Tasmania's logging practices. A critique of Tasmanian forestry practices was the subject of a television documentary aired nationally by the Australian Broadcasting Corporation (Fullerton 2004). The documentary suggested that the management of Tasmania's public forests was not serving the interests of the Tasmanian people who nominally owned them. Instead, public assets were, with the aid of public subsidies, being converted into private wealth for the benefit of institutional and private shareholders of Gunns Limited, the state's largest timber industry corporation. The program implied that Tasmania's publicly owned forests were being managed within an entrenched resource management culture characterised by cronyism and corruption, in which a lack of transparency and public accountability was maintained by an atmosphere of secrecy and intimidation (Fullerton 2004).

Distributional questions were raised. The report noted that while the rate of timber harvesting from old growth forests was higher than it had ever been, the bulk of this timber was going into highly mechanised, highly profitable but low value woodchips, and

[88] Tasmanian forests became a key issue in the 2004 Australian federal election. Mark Latham, the leader of the Australian Labor Party gambled on a conservationist position on old growth logging, accompanied by the offer of generous compensation for lost jobs. The Tasmanian timber industry unions and some Tasmanian Labor Party politicians campaigned stridently against this and supported the conservative (Liberal Party) Prime Minister, John Howard, who won the election.

employment in Tasmania's forest industries was in decline. The number of sawmills in the island had fallen from 205 in 1980 to less than 30 in 2004 (Fullerton 2004). Quality craftwoods were becoming scarce as small-scale sawmillers found themselves increasingly denied access to timber resources. Meanwhile, much high value timber was being wasted as old growth forest lands, after harvesting, were subjected to high intensity burns using residual logs as fuel, before the land was redeveloped as plantations. The report noted that public assets were being privatised as forested crown land was converted to freehold property under plantations. The value of shares in Gunns Limited had increased 900 per cent in five years. Forestry Tasmania claimed an operating profit of $24 million in the last year, but when the loss of value of the forest estate was taken into account it made a loss of $11 million – a figure reported by the state's Auditor-General (Fullerton 2004). This could also be regarded as a public to private transfer.

The environmental impact of forestry operations is also of concern. Fullerton (2004) argues that Forestry Tasmania is, for practical purposes, exempt from national threatened species laws. The report explained that 'Forestry' operates under a code of practice which is self-regulated by a Forest Practices Board of five members with a seven member Advisory Council. Almost all of the members of the Board and of the Advisory Council have industry connections. The presenter of the *Four Corners* program (Fullerton 2004: 9) put it to Paul Lennon, then Minister responsible for Forestry (and now Premier of Tasmania), that "in the context of the political environment in Tasmania", a system of self-regulation with a board stacked with people with such apparent vested interests "is a recipe for cronyism and is a recipe for corruption", a point of view supported by allegations made at a Federal Senate Enquiry on 8 October 2003 by Bill Manning, a qualified forest practices officer who had worked for 32 years for the Forestry Commission, Forestry Tasmania and the Forest Practices Board. Bill Manning described a culture of cronyism, intimidation and deception in Tasmanian forestry. He provided evidence to the Federal Senate enquiry of 100 breaches of the forest practices code, and indicated that the Forest Practices Board had failed to prosecute over any of them. These included the "obliteration" of streams that were habitat to the state's unique, endangered giant freshwater crayfish (Fullerton 2004). There is a widely held view in Tasmania that forestry practices operate with blatant disregard for even the limited "codes of conduct" that are supposed to provide some level of environmental protection.

The political environment within which the forest industry in Tasmania operates is the key to understanding these concerns about resource allocation and environmental impacts. The documentary pointed out that the responsibility for management of Tasmania's public forests

lay with the government of Tasmania. Corporations such as Gunns Limited were obliged to put the interests of their shareholders ahead of those of the general public. It is Tasmania's politicians who should be accountable for the way public forest resources are managed. The report suggests that Tasmania's politicians evade being held to public account by the use of secrecy, intimidation and propaganda. Commercial arrangements between Forestry Tasmania and companies such as Gunns Limited are not open and transparent. They are deemed to be "commercial in confidence" and, on this basis are exempt from Tasmania's freedom of information laws. Forestry Tasmania's general exemption from freedom of information laws was granted by an Act of Parliament (Fullerton 2004). People cannot find out who is paid how much for what, (for example, no information is available on what royalties are paid for access to forest resources by Gunns Limited), a point made by Federal Senator Bill Heffernan (Liberal Party) who suggested that such an exemption would not be necessary unless there was something to hide (Fullerton 2004: 4). A culture of intimidation means that people who work in the industry are afraid to speak out. They dare not criticise forestry practices for fear of losing their jobs, or worse. Senator Heffernan indicated that he had spoken to people in Tasmania who had received death threats (Fullerton 2004: 1).

Forestry Tasmania works hard to generate a positive message about its operations. Evan Rolley, the Managing Director, is described as "a communications guru" (Fullerton 2004: 3), whose job includes putting a plausible, positive "spin" on forestry operations, protected from contradiction by the restrictions on access to information.

The *Four Corners* report also commented on the close relationship that exists between John Gay, the Managing Director of Gunns Limited, other board members and leading politicians of both the Liberal and the Labor parties (the state's two dominant political parties). Robin Gray, for example, is a former Liberal Party Premier and now a board member of Gunns Limited. He is remembered for his involvement, in 1989, in an attempt by Edmund Rouse (then Chairman of Gunns) to bribe a Labor member of parliament to cross the floor and prevent the formation of a government in which the Tasmanian Greens would have participated as the minor partner. Flanagan (2004a) and Fullerton (2004) suggest that this attempt to subvert Tasmania's government was motivated by concerns that the Greens would interfere with Gunns' logging operations. The Labor Party Premier, Paul Lennon, and the leader of the Liberal Party Opposition, Rene Hidding[89], are both unequivocal in their support for Gunns Limited and Forestry Tasmania's operations. The only strong voice of political opposition comes from the Tasmanian Greens.

[89] Rene Hidding was deposed as party leader following the state elections in March 2006.

Flanagan (2004a) criticises the complicity of government in the destruction of Tasmania's forest resources in an article that shares many arguments with the *Four Corners* report. He observes that the revelations of Bill Manning at the Senate Inquiry would threaten to bring down the government in any other state, but in Tasmania, it caused little lasting discomfort. A protest rally organised by the Greens in March 2004 attracted nearly 10,000 people but was largely ignored by government. Why is this so? Perhaps the answer lies in The Greens' support base. Many have come to Tasmania from elsewhere, and they might, in addition, be characterised as urban, educated, and middle class, often employed in professions such as teaching and in the public service. A large gulf exists between them and the more traditional Tasmanian working class in a society with strong rural links, and in which the culture of "not rocking the boat" is so deeply entrenched. Flanagan (2004a: 7) gives emphasis to this point noting:

> *To question, to comment adversely, is to invite the possibility of ostracism and unemployment, and the state is full of those who pay a high price for their opinion on the forests, the blackballed multiplying with the blackened stumps. It is commonplace to meet people in various positions and businesses too frightened to speak publicly of their concerns about forestry practices because of the adverse consequences they perceive this might have for their careers and businesses. In consequence of the forest battle, a subtle fear has entered Tasmanian public life; it stifles dissent, avoids truth.*

This description, which Flanagan links to the current forest battle, has arguably been, and continues to be, a pervasive characteristic of Tasmania more generally.

The primary purpose of this discussion of the Tasmanian forest industry is to illustrate the political and business environment within which resource management in Tasmania continues to take place. This provides a context which informs the analysis of marine resource management in Tasmania in the following case studies. Some comparisons might, however, be drawn between Tasmanian forestry and the Newfoundland cod fishery prior to the 1992 crisis. Clearfelling of old growth forest may be compared to industrial trawling. Common themes of these two resource management case studies include the hegemony of government and business interests and their singleminded promotion of industrialisation, producing low value product while placing a heavy demand on the resource; the exclusion of small resource users whilst government rhetoric talks of job creation; and the conversion of the resource base (in Tasmania, old growth forest is converted to plantation, in Newfoundland the cod fishery has been converted to a greater emphasis on shellfish). In both cases this conversion has been accompanied by a conversion of public resource to private property, and in both cases this has been accomplished with the assistance of large amounts of public financial and natural resource subsidies. The following sections examine

marine resource management in Tasmania. The first deals with the evolution of management of the rock lobster fishery to a system based on individual transferable quota, and the second deals with regulation of pollution from salmon farming in Tasmania's coastal waterways.

4.3 Private Property and Public Interest in Contemporary Tasmanian Resource Management: The Tasmanian Lobster Fishery

Figure 4.3 Typical Tasmanian lobster fishing vessel with beehive pots stacked on wharf

4.3.1 Introduction

Tasmania's rock lobster fishery is based on the southern rock lobster (*Jasus edwardsii*). With annual catch valued at approximately AU$ 50 million, it is second only in value to the state's abalone fishery (AU$ 102 million in 2006). It has a longer tradition than the abalone fishery but has followed the trend set in the abalone fishery towards management by individual transferable quota (ITQ) and property rights. The rock lobster fishery has been managed by input controls for over a century and by limited entry since the late 1960s. ITQ based management was introduced in 1998. This marked the continuation of a management trend that has favoured economic efficiency at the cost of reduced employment and greater restrictions on access to the fishery with implications for social equality, economic wellbeing and environmental sustainability.

The commercial rock lobster catch of around 1500 tonnes per year is harvested using baited pots. There are now about 224 vessels in the fleet, down from about 320 prior to the

introduction of the quota management system (QMS) in 1998. Vessels are mostly between 6 and 26 metres in length, each working between 15 and 50 pots. Recreational fishing for lobster is also a cultural tradition in Tasmania and over 15,000 recreational fishers participate each year using either one pot, up to four baited lift nets known as rings, or by diving with or without compressed air. Regulation of the recreational fishery has become more intrusive since the introduction of the QMS for the commercial fishery (DPIF 1998).

4.3.2 ITQ in Context

In recent decades, as discussed in chapter 2, there has been a worldwide trend towards fishery management systems based on private property rights such as ITQ. Iceland, South Africa, Canada, Australia and New Zealand are among the pioneers of ITQ fishery management systems and their use continues to be adopted more widely in spite of concerns and a growing body of criticism about their social and regional economic impacts. Justification for introducing private-property based fishery management systems generally rests on two foundations, which relate to conservation and economic efficiency (Charles 1992). First, there is generally an argument that constraint over access and/or fishing effort is necessary in order to safeguard biological sustainability. And second, it is argued that the form of constraint chosen should promote economic efficiency in the conventional sense. This view of efficiency, which underpins neoliberal economic orthodoxy, favours the interests of capital - the medium of power in complex, modern societies - but it is disconnected from economic perspectives that relate to social and regional economic wellbeing, and it serves to invalidate conservation measures that compromise establishment interests. Control over access to resources is the essence of power in any society, and this applies to control over access to fishery resources, which is often highly politicised.

The trend towards privatisation of fishery resources through ITQ and other mechanisms can be viewed from a socio-political perspective. Based on an integrated study of general social, political and economic tendencies, Olson (1982) demonstrated how special interest groups with a vested interest in promoting particular policies have an advantage over those with a broader interest in the wellbeing of society as a whole. He argued that, over time, special interest groups, usually with government help, accumulate privileges and monopolies at the expense of the public interest. Redistributive coalitions become more and more entrenched. Prosperity is undermined as redistributive activities come to predominate, and productive activities suffer increasingly from the predatory activity of these rent-seeking coalitions. Social wellbeing and the public good are degraded as resources are monopolised by a governing class of self-serving owners (claiming the overriding priority of property rights),

bureaucrats, managers and other rent-seekers. This progression, if not disturbed by some significant disruption to the social, political and economic order, inevitably leads to the development of a society dominated by contesting groups preoccupied with property rights and the maintenance of privileges attached to social status. The consequence is poor economic productivity and a society characterised by poverty, entrenched inequality, and civic and institutional dysfunction.

Olson's model is relevant to issues raised by Matthiasson (2001) concerning the economic effects of the adoption of ITQ in Iceland's fishery sector. Matthiasson notes a tendency for resource-rich countries to be economically less successful than resource-poor ones. He identifies the problems associated with rent-seeking behaviour and considers how to prevent income from resource wealth ruining the prospects for economic (and social) progress. The critical problem in Iceland, he argues, is that interest groups have been allowed to determine the shape of the nation's fisheries management systems.

Phillips (1998) and Phillips, Kriwoken and Hay (2002) examine how interest groups have influenced the development of policy in Tasmania's rock lobster fishery and discuss how regulation of the rock lobster fishery has developed through various steps to the current management system based on ITQ that serves rent-seeking, vested interests at the expense of the interests of a wider Tasmanian community. They link these developments to Tasmania's political and resource management culture, which, they argue, influenced the development of fisheries management policies and practices in ways that promote inequality. Inequality linked to entrenched social-dualism has been identified as a causative factor of community dysfunction, which in the case of Newfoundland was linked to resource failure in the cod fishery.

Phillips (1998) described the history of the Tasmanian rock lobster fishery, biological and economic considerations, and the politics associated with the introduction of ITQ in 1998. The following section includes a brief overview of this analysis with references to additional sources, and examines some of the consequences of implementation of the QMS and recent developments in the fishery. Some of the material in this section has been published in an article in *Marine Policy* (Phillips, Kriwoken and Hay 2002).

4.3.3 History of Tasmania's Rock Lobster Fishery

Development and Regulation of the Fishery

The Tasmanian lobster fishery had its origins in the early years of European settlement. The fishery has been managed since the 1880s, when, following a Royal Commission of Inquiry (Seal *et al.* 1883), laws to regulate it were formally introduced (Parliament of Tasmania 1997: 34). The most important regulation was the establishment of a minimum size limit of '12 inches' (294 mm) total length (Winstanley 1973: 3). This regulation, with slight variation over the years, has proven to be an effective conservation measure, protecting the fishery from biological overfishing, and has been the principal basis of management of the fishery (Harrison 1987b: 11; Parliament of Tasmania 1997: 34). The current size limit of a carapace length of 110 mm for male and 105 mm for female lobsters has essentially the same effect as the original 12-inch size limit.

Technological Efficiency Creep and Regulation

In 1883 Tasmanian fishers were limited to the fairly inefficient, labour intensive technology of working baited lift nets or 'rings' from sail and oar powered vessels (Seal *et al.* 1883: xii). These rings were comprised of a weighted hoop of about 1 metre in diameter with netting stretched across it. Bait would be tied to the netting in the middle of the ring, which would then be lowered on a line to the seabed in rocky areas of likely lobster habitat. After a period on the bottom, perhaps half an hour or so, the ring would be pulled quickly to the surface with, hopefully, a lobster or two caught in the net. As early as the 1880s it was suggested that the use of baited pots (traps) might increase the productivity of the fishery (Seal *et al.* 1883: xv), but Tasmanian fishers opposed the introduction of this more powerful technology. Their motives were the same as those that saw opposition to more powerful and capital-intensive technology in the Newfoundland cod fishery in the 1800s as discussed in chapter 3. Conservation of the fishery, it was argued, would be damaged as the more powerful equipment would deplete the beds through overfishing (Winstanley 1973: 3). It was also suggested that lost pots would continue to trap lobsters or "ghost fish" (Storey 1998). Opposition to pots was also motivated by the desire of Tasmanian fishers to exclude 'outsiders' who crossed Bass Strait from the state of Victoria. The latter needed large sea-going vessels to handle the hazardous seas of Bass Strait and these vessels were also more suited to fishing with pots than were small, Tasmanian coastal craft. There was also the natural resistance of poor, artisanal fishers, to the introduction of powerful, capital intensive methods, that clearly had the potential to damage their interests through competition over resource and market access (Phillips 1998: 62-63; Phillips, Kriwoken and Hay 2002).

In 1902 the use of pots in Tasmanian waters was expressly prohibited (Winstanley 1973: 3), but not effectively enforced. Fishers from Victoria continued to use them and, as northern waters were depleted, they extended their activities down Tasmania's sheltered east coast (Winstanley 1973: 3). In 1905 there was a change in policy and regulated use of pots was permitted for northern Tasmanian waters (north of latitude 40°38' S). In 1913 this was extended to include the east coast fishery (waters north of latitude 42°21' S) and in 1925 pot use was extended to all Tasmanian waters with the exception of the Derwent Estuary, the D'Entrecasteaux Channel and Storm Bay (Winstanley 1973: 3-5).

There was continued opposition to the introduction of pots by the Tasmanian 'ring fishers' who lacked the capital to obtain the larger vessels needed to fish pots and who preferred their traditional methods (Winstanley 1973: 5; Wilson 1987: 5). Nevertheless, the use of pots increased gradually from 15 per cent of fishing vessels in 1925 to 37 per cent in 1939 (Winstanley 1973: 10). Pot use was regulated according to vessel size, with larger vessels permitted to use proportionately more pots than smaller ones, up to a maximum of 30 pots for the largest vessels in the fleet (Winstanley 1973: 6). The transition from the ring fishery to the more capital-intensive pot fishery continued and marked the beginning of the trend towards greater capitalisation of the fishery. Traditional inshore fishers who lacked access to capital were gradually marginalized (Phillips 1998: 62-63; Phillips, Kriwoken and Hay 2002).

After the wartime disruption of 1939-1945 the industry enjoyed a boom period. Post war reconstruction programmes and low interest loans assisted many to enter the fishery. New technology, including synthetic rope, echo-sounders and reliable diesel motors, greatly boosted fishing efficiency, while advances in refrigerated transport gave the Tasmanian fishery access to lucrative markets for lobster-tails in the United States (Smith and Fergusson 1969: 5). Prior to the 1960s, the fishery was essentially "open-access" to all qualified skippers with the capital to purchase gear and a boat of adequate size to qualify for the use of pots (Phillips 1998: 63). This situation was not to last.

Limited-Entry: A First Step Toward Enclosure

The move to a limited-entry fishery[90] began in 1967 when the number of licences was capped at 420. The purpose of this move was to protect the incomes of the established

[90] The lobster fisheries of Newfoundland and the Maritime Provinces also adopted a policy of limited-entry in 1967, probably motivated by similar concerns and arguments with respect to technological gains and within the context of similar social and economic circumstances in the Maritime Provinces as existed in Tasmania/Australia at that time. However, the Canadian Maritime lobster fisheries have

operators from competition by additional entrants to the fishery (Harrison 1987a); it was not motivated by concern over the sustainability of stocks (Winstanley 1973: 7; Parliament of Tasmania 1997: 19). Yet, rather than acknowledge that the measures were merely a service to established interests, government and industry conspired to convince the public that the measures were for conservation purposes (Bradshaw 2002).

Following limited-entry there was some growth in capacity as smaller operators were able to upgrade vessels and so increase their pot entitlements up to the 40 pot limit that applied at that time. Then in 1972 the number of pots in the fleet was capped at a total of 10,507 (Winstanley 1973: 7). The number of licences was gradually reduced in the following years as some operators retired and pots were amalgamated into fewer, though larger, holdings. Transfer of licences and pots was permitted within a few years, and a market in fishing entitlements soon developed. Thus, rights of access to the fishery, which had originally been established as a privilege, began to be transformed into a form of tradable property.

Limiting entry did not prevent the growth of effort in the industry. The "fishing power" of the fleet continued to increase due to various technological improvements, the introduction of satellite navigation systems in the early 1990s being particularly significant. There was also a significant price increase for the product from AU$ 10 per kilogram in the mid 1980s to AU$ 30 per kilogram in the mid 1990s, a consequence of the development of a live, air-freight, export market to Asia and this encouraged intensification of fishing effort (Bradshaw, Williamson and Wood 2000). Regulation also favoured increasing fishing efficiency. In 1960, for example, the maximum per vessel pot limit was raised from 30 to 40 and the pot allowance for smaller vessels in the fleet was also raised proportionately.

By the late 1980s and early 1990s there was growing concern about overfishing, both within the industry and in government. Biological sustainability was not the major issue. The concern was essentially about economic overfishing. Resource rent was being dissipated through excess fishing effort as fishers competed in a race to 'catch the fish before somebody else did'. Rent dissipation by excess effort limited profits and constrained the potential for increase in the capital value of fishing entitlements. On the other hand, the 'excess' effort was the basis of employment for many skippers, deck hands and other suppliers of fishing related inputs.

not taken the next step towards privatisation of the fishery, adoption of a quota management system, though the issue continues to be debated.

Rock Lobster Biology and Annual Harvest

The annual catch has been remarkably consistent, varying between 1000 and 2000 tonnes since the pot fishery became established in the 1930s and there has been no readily discernible trend (Phillips 1998: 64). Effective fishing effort has increased significantly over this time, but the fishery has not been in danger of biological collapse[91]. There are still gaps in the knowledge of factors that affect lobster population ecology but it is generally believed that, as long as an adequate breeding population is maintained, the actual abundance of lobsters has little direct correlation with future recruitment to the fishery. Environmental factors linked to cycles affecting weather patterns and ocean currents appear to be more important (Bruce *et al.* 2000). Conservation of the breeding stock has always been provided by the minimum size limit. This generally allowed lobsters to grow to beyond the age of sexual maturity and reproduction before they could legally be taken. In lobster fisheries that use baited pots with escape gaps and observe an appropriate size limit, effort can in theory be greatly increased without affecting biological productivity. Productivity may even benefit where food supply is a limiting factor due to the extra feeding provided by the bait that is used in excess fishing effort. Until the 1990s the management position was that: "so far as conserving the stock is concerned fishing effort need not be controlled" (Harrison 1987b: 11).

Social and Economic Considerations

While curbing effort may not be necessary to prevent biological stock collapse, it is the key to raising catch per unit effort and producing efficiency gains that would yield more resource rent or profit. Under heavy fishing pressure the abundance of fish of legal harvest size is reduced as this part of the population is fished down and the catch per unit effort, which relates to the abundance of 'size' fish, is reduced. Effort reduction allows rebuilding of the harvestable stock of 'size' fish and increases catch per unit effort. However, an effect of this efficiency gain is to redistribute economic benefits away from labour and other inputs of fishing effort, to capital owners of access rights to the fishery. These owners became major beneficiaries of increasing resource rent capture after the QMS was introduced. Allocational issues have been a powerful driving force influencing policy, but this has generally not been made explicit. Instead the rhetoric of conservation is resorted to in justification of policies that principally serve the economic interests of particular stakeholders. Self-interest may drive policy, but expression of conservation concerns provides a powerful source of moral legitimacy (Phillips 1998).

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[91] This assumption differs from a similar, though erroneous assumption about the resilience of Newfoundland cod stocks to overfishing (discussed in chapter 3). Immature cod could not be so easily protected from fishing mortality as Tasmanian rock lobster in the pot fishery.

Phillips (1998: 68-71) analysed several economic surveys of the Tasmanian rock lobster fishery that have been conducted over the years, often to support moves toward a change in policy. In the mid 1960s, for example, an economic survey (Smith and Fergusson 1969: 45-47) conducted by the Tasmanian Department of Agriculture found that the industry was economically 'marginal' and supported the change to limited entry. Following the move to limited entry and the development of a market for fishing entitlements based on 'pots', the market price of pots was recognised as a good indicator of the economic performance of the fishery (Campbell 1987: 29). At that time the market value of licences, at AU$ 4000 per pot attached to the licence, was found to be justified by the economics of the industry (i.e. new entrants paying this price of entry would be economically marginal). This academic study suggested that there was no cause for concern - no economic crisis requiring a change of policy.

In 1991, in the lead-up to debate over the introduction of ITQ based management, the economic "viability" of the fishery was again raised as a matter of concern. By this time the price of pots had risen to AU$ 6000. This indicated that the economic return per pot had increased, raising the price that fishers were prepared to pay for access entitlements. However, a study, again conducted by the fisheries management authority (Morrow 1991), focused attention on the 'internal rate of return', a measure of the economic performance of investment capital in the industry. It found the industry to be a 'marginal' prospect for investment. This was not really surprising since an increase in the 'economic surplus' produced in the fishery would be reflected in an increase in the price of pots to be paid to enter and participate in the fishery. While the increased price of pots was indicative of better economic returns from the fishery, the economic analysis based on internal rate of return claimed that the industry was in economic decline. To address this spurious economic 'crisis', the study advocated the adoption of ITQ based management and the relaxation of efficiency constraining input controls. The logic of this argument is contestable because any increase in efficiency leading to increased resource rent recovery would, under market conditions, be met by an increase in the cost of entitlements (pots or quota units). This increased 'capital' cost of entry would be expected, if subjected to internal rate of return analysis, to show the same marginality of the economic performance of the industry. Morrow's study (1991: 16) did note that Tasmania could choose to have a large and inefficient fleet or a smaller efficient one, but suggested that the fishery and coastal communities associated with it would continue on a course of gradual decline unless management action was taken to rationalise the industry and make it more efficient by reducing operational costs.

Phillips (1998: 70-71) suggests that an argument could have been made for the opposite conclusion: that the decline in these regional economies had been associated with reduced local employment in the fishery due to previous rationalisation and reduction in the size of the fleet. Further gains in fishing efficiency, far from reversing the trend, could be expected to exacerbate the decline in regional economies. Nevertheless, this economic analysis was used to support proposals for the introduction of the QMS and further rationalisation of the fishery in order to promote efficiency in terms of increased rent production.

Adoption of a Quota Management System

The decision to move towards the QMS was adopted after 1995 following a ballot of licence holders. Many fishers were excluded from this ballot including deck hands and skippers who leased rather than owned licences (Phillips 1998: 71; Phillips, Kriwoken and Hay 2002). Only licence holders deemed to be the owners of property rights in the fishery were considered "stakeholders" and included in the ballot, and only 53 per cent of primary votes favoured a quota management system (DPIF 1997a: 21). The decision to attempt to introduce a QMS for the fishery was adopted by cabinet in accordance with the wishes of the Minister for Primary Industry and Fisheries in August 1996 (Williamson 2002: 123)[92].

4.3.4 Politics and the Introduction of the QMS

Several accounts include some discussion and analysis of the political manoeuvrings associated with the introduction of the QMS (Phillips 1998; Bradshaw, Williamson and Wood 2000; Bradshaw 2002; Phillips, Kriwoken and Hay 2002; Williamson 2002). Once the decision had been made to adopt a QMS, several years were required to finalise arrangements, particularly those relating to allocation of the total allowable catch (TAC) among licence holders. The government's draft management plan released in 1997 (DPIF 1997a) proposed that a total allowable catch for the fishery be set, based on an annual stock assessment. This TAC was to be allocated on an equal per pot basis among the total of 10,507 pots attached to the 320 licences in the fleet. The preference for per-pot allocation acknowledged pots as the traditional unit of tradable property in the fishery, and the basis of past investment or 'stakeholding' in the industry. Another consideration favouring this method of allocation related to a political consideration of simple numbers. The majority of licence holders would benefit from this method of allocation and might be expected to support it, while those disadvantaged, the "big catchers" in the fleet, were relatively few.

[92] Tasmania's abalone fishery was already managed by a quota management system (DPIF 1997b)

Under the draft management plan, quota units were to be tradable and the number of pots allowed per vessel increased by 25 per cent to allow for amalgamation of holdings and the restructuring of the industry toward fewer, more efficient vessels. The maximum number of pots that could be fished from the larger vessels in the fleet would increase from 40 to 50 (DPIF 1997a: 44). These additional pots would have to be bought from other licence holders out of the limited number of 10,507 pots in the fleet.

As noted, this proposed method of allocation of the TAC disadvantaged the 'big catchers' in the fleet. Many objected to the QMS altogether, and thought that allocation of quota on an equal per pot basis was unfair. They believed that quota allocation should reflect catch history whereby the traditional big catchers in the fleet would be allocated more quota to reflect past operational patterns. They lobbied hard, and in response to their concerns, Tasmania's Upper House of Parliament, The Legislative Council, conducted a Select Committee Inquiry into the Tasmanian rock lobster fishery (Parliament of Tasmania 1997).

Report of the Select Committee Inquiry

The Select Committee Inquiry produced a useful report containing a detailed and comprehensive analysis of biological and economic aspects of the fishery. It found that the fishery was "not in danger of imminent collapse" (Parliament of Tasmania 1997: 6) and recommended that the introduction of a QMS be delayed, though not dismissed altogether. It referred to Morrow's (1991) economic analysis and adopted his view that a reduction in effort and catch were necessary to avoid a gradual decline. In this it lent support to the "economic" rather than the "social" fisheries paradigm, and it reflected the lobbying efforts of the "big catchers" by suggesting that allocation of quota, when a QMS was eventually phased in, should recognise catch history. This, as noted by Phillips (1998: 74), "challenged the established position of the pot as the unit of 'property' in the fishery".

Phillips also noted (1998:74):

> *Efficiency gains as a result of technological improvements over past decades were clearly identified as the major causes leading to overfishing and overcapacity (Parliament of Tasmania 1997: 47-57). The link between the progressive increase in the market price of lobster over past decades and overfishing was also made. These issues were clearly identified in the report as causes of the problem, but the recommendations contained nothing to address them. On the contrary, the report recommended further reduction in efficiency constraints by raising the maximum number of pots per vessel from 40 to 60 (Parliament of Tasmania 1997: 10).*

The Nixon Report

At the time that the management plan was being debated, the Nixon Report, commissioned by the Australian Commonwealth Government to provide broad-ranging advice to both the state and Commonwealth governments on matters of Tasmanian economic policy, included a section advising on management of the rock lobster fishery (Nixon 1997). The Nixon Report recommended a total restructuring of the fishery in the interests of efficiency. It suggested that the government buy back all existing rights in the fishery (i.e. pots and licences that represented existing capital investment), and then re-allocate rights in the form of quota by a process of tendering, which would fund the initial buy-back. The Nixon Report also recommended further measures to promote efficiency, suggesting that remaining input controls such as vessel-pot limits be abolished (Nixon 1997: 186). For various reasons relating to party politics, and relations between the state and federal governments, the Nixon Report received little support in Tasmania and was virtually ignored.

Discussion of Management Proposals

Phillips explains (1998: 76) that these three management proposals shared a commitment to the management goal of increasing efficiency in the fishery, as measured by the production of economic surplus in the form of profit or resource rent. The cost of efficiency gains would be measured by a reduction in the number of vessels and people employed in the industry. Rebuilding and maintaining the biomass of takeable fish, those above the size limit, would lead to improved catch rates and the total allowable catch could be harvested with less effort and less cost than in a competitive fishery operating according to the equilibrium yield model. Relaxing some input controls, such as limits on the number of pots used per vessel, would also increase efficiency but result in a reduction in employment in the fishery as pots would be amalgamated onto fewer vessels and fewer crew would be required.

Phillips (1998: 75) argues that the only real difference between the three positions lay in their support for the narrow interests of particular stakeholder sub-groups. The recommendations put forward by the Nixon Report, while not really feasible for political and practical reasons, would, in theory, have captured a capital gain for government. The government position outlined in the Draft Management Plan, by advocating quota allocation on an equal per pot basis, favoured the majority of licence holders, who generally landed less than the proposed allocation of 150 kilograms-per-pot. The Select Committee Report, favoured the minority of licence holders whose catches typically exceeded 150 kilograms-per-pot and who logically wished quota allocation to recognise catch history. The argument was essentially about how to divide the 'cake' among licence holders. It was a redistributive argument among rent-seeking interest groups.

There was every expectation that the market value of fishing entitlements (pots/quota) would increase under the QMS, reflecting increased rent production from the fishery as a consequence of efficiency gains. Phillips notes (1998: 75) "this benefit to licence holders would, however, come at a cost to other sectors of society". Employment opportunities in the industry would be reduced and future generations of fishers would face an increased cost of entry relating to the expected increase in the cost of leasing or buying quota. A socio-economic impact study produced by the University of Tasmania forecast that the number of deck-hands employed in the industry would be halved (Williamson, Wood and Bradshaw 1998: xii). Phillips noted:

> *There was no serious consideration given to management options that would maintain or increase employment in the industry. The productivity of the fishery is limited by the biological constraints of rock lobster ecology. The total value of the fishery has progressively increased in recent decades as the market price for lobster has risen. The industry today could sustainably generate a higher income, adjusted for inflation, than it has in recent years. This income could support more people in employment than the industry employed in the past. The Tasmanian Government (Morrow 1991:16) and the Select Committee (Parliament of Tasmania 1997: 20) recognised that there were options. Tasmania could have a large fleet maximising employment and lifestyle opportunities, each limited to a low annual catch, or a more "efficient" smaller fleet producing more economic surplus. However, all proposals favoured managing the fishery to reduce employment and increase efficiency in terms of rent production. In doing so they all favoured the interests of rent-seeking sectors of society at the cost of reduced employment opportunities in the fishery and adverse outcomes could be predicted for regional economies and social equality generally (1998: 75).*

The eventual resolution, arrived at after much debate and negotiation, was a management plan for the fishery implemented in March 1998 (DPIF 1997c, and *Fisheries (Rock Lobster) Rules 1997),* which essentially followed the intentions of the Draft Management Plan but included some concessions to the historically big catchers in the fleet by incorporating an element of catch history in the initial allocation of quota (*Living Marine Resources Management Amendment (Rock Lobster Quota) Act 1997).*

Phillips (1998: 76-79) discusses some hypothetical alternative management scenarios that he suggests would have been more compatible with the concept of equal access and other values linked to sustainable development. First, he suggests that state waters could be zoned. The established industrial pot fishing practices of the commercial fishery could have continued offshore and off the west coast of Tasmania, perhaps limited by a QMS. But in the sheltered and heavily fished waters of the east coast where tourism and recreational fishing are most important, a different system based on efficiency constraints was recommended. Vessels could be restricted to fewer pots, perhaps 15 or less, or fishers might

be restricted to the traditional rings. This could counter the escalation of effort linked to the increased power of fishing technology and the incentive to fish provided by the inflated market price for lobster. This equal access efficiency-constrained fishery, Phillips argued, could have stimulated tourism and provided greater economic benefit to coastal communities than a fishery focused on rent production from an industrial approach to resource extraction. He also suggests that a resource tax would have been a useful management tool. Arnason (1993) notes that a resource tax levied on catch would provide an effective control on effort. A charge of $10 per lobster or per kilogram exported from the state could secure a return to the Tasmanian people from what is, nominally, a publicly owned resource. For ease of administration this tax could be applied only to lobsters exported from Tasmania and, thus, would not interfere with the internal market and its potential benefits in stimulating local prosperity. The current QMS has, in effect, such a tax in place – quota are traded for between $10 and $20 per kilogram - except that this resource rent is collected by the quota owners for their own benefit rather than by the Tasmanian government on behalf of the Tasmanian people. The alternative management scenarios contemplated here are, of course, out of step with the privatisation agenda of neoliberal globalisation, which generates pressure for policies that tend to transfer wealth out of peripheral regions, such as Tasmania, to service the accumulation of private global capital.

Passage of the Legislation

The process of passage of the necessary legislation for the QMS through Tasmania's Lower House (Legislative Assembly) and Upper House (Legislative Council) has been described by Bradshaw, Williamson and Wood (2000) and Williamson (2002: 122-129). Its success was far from certain. Politicians, especially those in the Upper House, had been subject to intensive lobbying for some time. At the time (1997-8) it seemed likely that the bill would not pass and that introduction of a QMS would be delayed for at least another year. It is worth noting the support given to the legislation by the Tasmanian Greens[93], and by a study conducted by researchers at the University of Tasmania into the likely socio-economic impacts of the QMS. The support of the Greens (who then held 4 out of 35 seats in the Lower House) may not have been crucial, but it demonstrates the effectiveness of the carefully promoted idea that urgent action was needed to avert a looming ecological crisis in the fishery. Bradshaw, who had an ongoing involvement in a socio-economic study monitoring the effects of the QMS, suggests that the Greens simply did not understand its broader social ramifications (Dr. Matt Bradshaw, Post Doctoral Research Fellow, University of Tasmania, personal communication, 2002). It also may be indicative of the gulf

[93] Greenpeace (in the US) campaigned strongly in 1999 against ITQ based fisheries for a range of ethical and practical conservation reasons (Jennings 1999).

separating the Greens and their largely urban constituents, from the sort of people most directly disadvantaged by enclosure of the fishery, young males with limited educational qualifications, often living in rural-coastal communities with limited employment options.

While the government had been confident of passage of the legislation through the Lower House, where it passed with tripartite support in November 1997 (Williamson 2002: 125), members of the Upper House were divided. Lobbying of independent members had, as noted, been quite intense. A major point of objection by those holding out against the introduction of quota was the lack of a socio-economic impact study into its likely effects (DPIF 1997d). A socio-economic study had belatedly been commissioned (in June 1997) to address this issue when it began to emerge as a point of contention, but the study was not due to be finalised until after the debate in the Upper House. The lack of a completed social impact statement was repeatedly raised by anti-quota members and it seemed likely that the Legislative Council would follow their Select Committee's advice (Parliament of Tasmania 1997) and oppose the bill, delaying introduction of quota for at least another year (Williamson 2002:125).

At this point, and just before the bill was put to the vote, a letter of progress outlining preliminary findings of the socio-economic study was introduced into the debate and may have helped to quell the opposition to quota. The letter noted that much restructuring had already been occurring in the fishery and in the opinion of the researchers; the social and economic viability of no coastal community would be threatened by the impacts entailed in the proposed QMS (Williamson 2002: 127). Williamson (2002: 128) suggests that the letter which was read out during debate of the issue in Parliament may have influenced the outcome and contributed to the passage of the bill. She notes that the 'independence' of the University research team from their employers (DPIF), a matter that had been emphasised in the Parliamentary debate, could have been brought into question by the use of their preliminary findings to support the pro-quota lobby. They had entered the debate with some trepidation, but felt obliged to do so at the request of their employers, the DPIF, who specifically wished them to address the question of whether the social and economic viability of any port community would be threatened by adopting the proposed QMS (Dr. Matt Bradshaw, Post Doctoral Research Fellow, University of Tasmania, personal communication, 2002). At that time the researchers, who had been intensively briefed by departmental managers and biologists, were convinced that urgent action was needed to avert an ecological crisis and believed that the QMS was the best management option to avert biological collapse of the fishery. None of the researchers were biologists and accepted the department's advice at face value (Dr. Matt Bradshaw, Post Doctoral Research Fellow,

University of Tasmania, personal communication, 2002). One of the researchers, Bradshaw (2002), later came to the view that the overfishing crisis was about rent dissipation rather than recruitment overfishing and that the QMS was primarily about securing the interests of capital in the fishery.

4.3.5 Effects of the Quota Management System

Four years on from the introduction of the QMS some of its effects are becoming apparent. There has been a dramatic increase in the market price of quota units. From the 1970s, when pots/units were traded for less than AU$ 1000, their market value increased to AU$ 4000 in 1987, AU$ 6000 in 1991, AU$ 10000 in 1997, prior to the introduction of the QMS, and by 2002, after the system had been in place for three years, the value of lobster quota units exceeded AU$ 25000. In 2005/2006 quota units traded for AU$ 35000. The value of 40 quota units, equivalent to the former "full" 40-pot licence package, has reached a value in excess of AU$ 1 million.

The Trend Toward Investor Control

There is a trend toward increased ownership of quota units by non-fishing investors and increased ownership by non-Tasmanians (Ford 2000). The high cost of quota units has now made it almost impossible for fish-workers without capital to work their way up from deck-hand to skipper, to eventually acquiring access rights and becoming owner-operators (Ford 2000), the path followed by many in the past. The separation between capital and labour is becoming increasingly entrenched. Ownership of property in the form of quota units is increasingly providing power over dependent suppliers of contract labour (Bradshaw 2002). Williamson (2002: 213) describes this as "refeudalisation" and "prolatarianisation" of the fishery. She notes (2002: 214) that retiring fishers are now less likely to pass on licences to their children or other relatives to fish with because they have become too valuable as rent earning assets[94]. This is also symptomatic of the widening social gap between those who fish and those who own fishing rights.

The total market value of quota units now exceeds AU$ 250 million. This reflects the capitalised value of the right by quota owners to claim approximately AU$ 20 million in annual rent from the fishery. Nominally the resource remains publicly owned and managed by the Government of Tasmania on behalf of the Tasmanian community. But the strength of vested interest that has become established as a result of past management policies, and the

[94] Family members stand to inherit licences and quota entitlements.

priority the legal and political systems give to promoting the financial interests associated with private property, means that government is severely constrained in how it manages the fishery. This constraint means that management of the fishery must continue to serve the rent-seeking interests that have become established, at the expense of the broader public interest that might be better served by a wider distribution of the resource wealth.

A new management environment is emerging with greater involvement of lobbyists, lawyers, accountants, and brokers of fishing entitlements. Unit owners are increasingly influenced by financial interest, rather than by identification with the values of industry traditions and sympathy with the concerns and interests of fishworkers. There is an ongoing push by the industry to increasingly 'liberalise' the market for quota units in order to further inflate their value. It has lobbied for removal of the stipulation that quota units be attached to licence packages, and to allow single units to be held (Bradshaw 2002). Currently a minimum of five units may be held and they must be attached to a licence package. (An unanticipated development is that the limited number of licences have now acquired a market value of about AU$ 50,000, independent of any quota units that may be attached.) One can expect that there will be ongoing efforts to promote more regulatory changes that will contribute to a further increase in the value of property rights associated with the fishery. Lip-service may be paid to socio-economic concerns and the intergenerational inequities that disadvantage the next generation of fishworkers. But beyond the rhetoric, the industry is not willing to allow any measures that will reduce the present value of fishing entitlements, or limit the potential for further increase.

Government's Perspective

The conventional view of management of the fishery and the introduction of the QMS is that it has been a success. Fishing effort has been reduced and the value of capitalised fishing entitlements has increased. A government perspective on developments in the fishery expresses little concern about social impacts and reduced employment opportunities (Ford 2000). On the contrary, it promotes further rationalisation of the industry in the direction of fewer participants by arguing that this is the key to increased profitability. It also suggests that the cost of an effective enforcement regime in a fishery with strong property rights is likely to be higher if there are more fishers.

Ford (2000) notes the strong investor security that is provided by the QMS and suggests that this factor, and further anticipated regulatory measures, will continue the trend toward investor control of the fishery and further reduce the opportunity for fishworkers to acquire access rights. He suggests that the trend away from an owner-operator fishery to one of

absentee landlords and contract harvesters will mean that the property-rights to the fishery will exert little deterrence to illegal activity on the part of those actively working in the fishery; they, after all, have no stake in the fishery. The government's role as enforcer of the property rights regime is emphasised and the value of fishing entitlements is explicitly linked to the effectiveness of enforcement. The likelihood that the government will seek to increase the enforcement regime, the costs to be passed on to the industry, is clearly foreshadowed here.

The new management environment is one in which government and property rights holders engage in a mixture of collaboration and contest. They collaborate to increase the production of resource rent from the exploitation of labour and natural resources in the fishery, and they contest with each other over distribution of the spoils. This is a contest between mutual dependants. The state depends on the property-rights mechanisms to produce an economic surplus from the fishery to which it can claim a share. And owners of fishing entitlements are dependent on the state, which maintains exclusive, legitimate authority to enforce and protect their property rights. Inequality and social tensions with the potential to pose a threat to property rights serve to maintain the importance of the state's enforcement role and so maintain the dependency of property owners on the state.

Other actors are also drawn in to the rent-seeking contest. These include politicians, fishery managers, biologists and enforcement officers, as well as brokers, lawyers and accountants, and also, it must be admitted, academic researchers. Many are associated with public institutions and are subsidised by public finances[95]. The rhetoric of public interest is often the currency of arbitrage between these contesting groups, and environmental, socio-economic, and economic efficiency issues are raised when convenient to exert leverage during management discussions which, though this is seldom made explicit, are to a degree about the distribution of resource rent among these groups.

Implications for the Recreational Fishery

Recreational fishing for rock lobster in Tasmania has a long tradition and strong participation. Recreational fishing licences cost a base fee of AU $31.50 plus an additional AU $5.25 for each endorsement for dive, pot or ring use. Approximately 14,900 recreational pot licences, 7,500 dive licenses and 4,400 ring licences are issued each year. The number of recreational licences issued has increased since introduction of the QMS. Recreational

[95] Williamson (2002: 205) noted that before the QMS 40% of management costs totalling AU $2.7M were recovered from the industry, whilst post QMS 55% of AU $3.4M was recovered, the rest being paid from public revenue.

fishers may use a combination of methods and gears. Pot fishers are limited to one pot and if they have obtained the additional endorsements, may also dive for lobster, and use up to four baited lift nets known as "rings". Divers may use compressed air but no implements other than a gloved hand may be used to capture lobsters. A daily bag limit of five lobsters applies to all recreational fishers and the catch must be marked by tail clipping and may not be bartered or sold. Penalties for infringements of the rules are quite severe. Minor infringements may incur on the spot fines of AU $100-200. Fines for more serious offences can total several thousand dollars and there are provisions for custodial sentences in extreme cases.

There has always been some friction between commercial and recreational rock lobster fishers in Tasmania. They are, after all, competing for the same resource. But the changes to the regulatory environment associated with the move to a QMS, and other factors affected by these changes, have more directly affected the relationship. Some of these effects are interesting to consider because they relate to the interaction between private and public interests in the fishery; the commercial fishery emphasising private property rights and the recreational fishery based on regulated public access to the resource.

Some negative impacts on the recreational sector of changes in the fishery include an increasingly onerous compliance system, with harsher penalties for infringements and more vigorous policing. The rules and regulations governing the recreational fishery are more complex and restrictive than formerly. It takes some concentration and effort to understand them and because of their increasing complexity and the more serious penalties for transgressions, the enjoyment and sense of freedom that many people seek in fishing as a recreation is intruded upon by the increased level of bureaucracy, and increased anxiety over the possibility of getting into trouble over a (possibly inadvertent) transgression of the rules. In this sense recreational fishers suffer the same impacts of increasing bureaucratisation associated with the QMS that afflicts fishworkers in the commercial sector. These constraints are also likely to hamper the development of tourism based on recreational lobster fishing. Much of the regulation of the recreational sector is in place to prevent access rights associated with recreational fishing being used as a way to circumvent and undermine the integrity of the QMS. There is also constant lobbying pressure from the commercial sector to restrict the recreational fishery further and to reduce the recreational catch. Suggestions made by the sector have included "capping" or limiting the number of licences issued and bringing in a total allowable catch for the recreational sector. It is in their interests to do this as it leaves more stock in the water which could allow an increase in the commercial total allowable catch. The number of recreational lobster licences has increased

since the introduction of the QMS and there is growing management focus on developing an explicit resource sharing arrangement for the two sectors (Revill and Williams 2006).

Much of the increased policing effort that has accompanied the QMS has targeted the recreational sector. There has always been concern within the commercial sector about poaching by recreational fishers. This poaching generally relates to taking more fish than daily bag limits (5) or possession limits (10) allow, and taking lobsters using extra pots, or other illegal methods. Divers using compressed air, either tanks or hookah gear, can be especially effective at times and divers can take lobster at times when they do not seem to be attracted to the baited pots; the only method of capture permitted for the commercial fishery. The sale or barter of lobsters taken by recreational fishing is illegal. Regulations intended to discourage illicit trade in recreational catch include the requirement that rock lobsters sold in Tasmania must bear an individually numbered tag, while lobsters taken in the recreational fishery must be marked by clipping the central fin on the tail as soon as the fish are removed from the water. While poaching on a small scale by 'recreational fishers' was once merely considered an intrusion upon the privileges of licence holders, it now tends to be viewed more seriously by quota owners as an offence against private property.

Following the introduction of the QMS it appears that there has been some intensification of commercial effort in the sheltered, inshore waters of the east coast and a reduction of effort offshore on the west coast. Reasons for this include the higher value per kilogram of shallow water inshore fish and the relative ease or convenience of fishing the inshore east coast waters versus the more difficult conditions off the west coast. A tendency for the commercial fleet to target inshore, east coast waters more intensively could increase competition with the recreational sector in these areas. The east coast inshore waters are particularly important for the recreational fishery, which harvests approximately 20 per cent of the east coast catch. The total recreational catch statewide is only about 5 per cent of the total commercial catch. Recreational fishing on the east coast supports the tourism economy which includes hotels and campgrounds, shops, service stations and other providers of goods and services used by fisher holidaymakers.

The politics of the conflict of interest between the two sectors is likely to continue to play a significant part in the ongoing management of the fishery. The recreational fishery, which is still open to anybody who wishes to buy a licence, can be viewed as representing a broader public interest, while the commercial sector is more narrowly defined by the capitalised private property rights that establish stakeholder interest in it. Government is in a position to play the two sectors off against each other to some extent, and thus the tension between the

two groups provides government with a powerful tool of political arbitrage. Olson's (1982) work leads us to believe that although they are more numerous, the recreational sector is unlikely to prevail in competition against the interests of the quota owners. However, the potential threat they pose to the interests of the commercial sector (the threat of the mob to private property), and the vital role of government in restraining them (by policing the fishery) suggests that they are a valuable political lever in the hands of government which it is in the interests of the government to maintain. It is the lever with which benefits can be pried out of the commercial sector, for example in the form of management levies, licence fees, resource rent taxes or political donations, to balance against the number of votes that the recreational fishery may represent.

There may, however, be some benefit to quota owners from maintaining participation in the recreational fishery. The industry needs skilled fishworkers to harvest the catch under the QMS. With the trend towards contract harvesting and the barrier to entry that the inflated cost of fishing entitlements now poses to new entrants, there is some concern about where the next generation of fishers is going to come from. Skills developed in the recreational fishery may, in theory, supply some of the future needs of the industry for skilled labour. But there are no longer the prospects of economic advancement as a reward for hard work and good fortune that provided an incentive for an earlier generation to enter the fishery.

Implications for Aboriginal Fishing Rights

Williamson (2002: 224) notes that "the ITQ management plan lacked any provision whatsoever for Tasmanian Aboriginal people." She suggests that this was due to the implementation process of the QMS which only considered established licence holders as stakeholders. She also comments that it may be "a reflection of a general lack of consideration of Aboriginal rights which may be endemic to natural resource management in Tasmania." Williamson suggests that the government may need to buy back quota from the commercial sector to address this issue in the future. Inspiration for this view may come from New Zealand where the government has bought back quota and allocated it to Maori communities in recognition of treaty obligations.

The Tasmanian Aboriginal community has suffered various forms of social and economic disadvantage. This began with dispossession and genocide in the nineteenth century, though Pybus (1991: 175-188) debates the question of the supposed "extermination" of the Tasmanian Aborigines. She points out the convenience, to those who had occupied the island, of declaring the original inhabitants extinct so that "there would be no more tortured questioning about 'the original owners of the soil' and what might be due to them" (1991:

178). Aboriginal identity is not defined on purely genetic grounds. From the time of settlement, intercourse between Aborigines and whites produced many children of mixed racial ancestry whose offspring have continued to be a part of the Tasmanian population, and whose primary identification is Aboriginal. Their links to an Aboriginal identity have not always provided social or economic advantages. It is only in recent decades that Commonwealth programs, and more recently, Tasmanian state ones, have sought to redress some of the injustices of the past with various forms of grants and assistance to people of Aboriginal ancestry. This often generates resentment from non-Aboriginal Tasmanians, who are offended that someone who is as 'white' as they, should receive special benefits (Pybus 1991: 187-188).

Internal disputes over membership of the Aboriginal community are also common, especially in relation to political conflict over control of organisations and resources, and at times Aboriginal organisations seem to be racked by factionalism and in-fighting. Allocation of quota to Tasmanian Aboriginal organisations may not be an effective means to provide benefits to address past injustices, and it could prove to be counter-productive by provoking increased divisiveness within the Aboriginal community and between it and the rest of Tasmanian society. In Canada there have been violent conflicts over the allocation of fish quota to native Americans, and in South Africa, the policy goal of redistributing fishery resources to benefit previously disadvantaged groups has not proven to be successful within quota based fisheries (Hersoug and Holm 2000), even in the context of a society that has undergone, supposedly, a social and political revolution.

If one genuinely wants to help the economically disadvantaged members of society, irrespective of their race, this might be more readily achieved if resources, such as the lobster fishery, were managed in a way that promotes wealth equalisation through egalitarian opportunities of access. Management systems characterised by enclosure of resources for the short term benefit of a few and in the interests of capital accumulation do not help the disadvantaged of society and compensation mechanisms, such as those discussed, are often ineffective at promoting material equality or of securing traditional values of association with nature and resources. They can exacerbate inequality and tensions within Aboriginal sub-groups and between them and the wider society. There is a subtle irony in the fact that the Australian community only recognised Aboriginal Australians as citizens with the right to vote in 1967, the same year that access was being closed to fishery resources through introduction of limited entry licensing systems.

Implications for Sustainability and Social and Economic Development

It is not difficult to make a case that the evolution of regulation in the Tasmanian rock lobster fishery fits Olson's (1982) theories about the trend towards domination by rent-seeking, vested interests. The retarding effects of rent-seeking activities on economic development and general prosperity has been well established (see, for example, Shleifer and Vishny 1998: 53-80). Matthiasson (2001), for example, discusses the problems associated with rent-seeking and resource wealth in relation to Iceland's fisheries and it is reasonable to expect that there will be similar impacts associated with the management trends in Tasmania's fisheries discussed here.

There are costs associated with the non-productive accounting and policing activities that the QMS requires, and also opportunity costs associated with the management system's constraints. A less restricted system of management might allow the development of more diverse, creative and productive ways to use the resource, yielding greater economic and other wellbeing benefits. In some regions, for example, the fishery might produce greater wealth from value-adding and multiplier effects if it were managed to promote tourism and recreational fishing, rather than 'economically efficient' commercial fishing with an emphasis on rent production (Phillips 1998:71-74).

Perhaps the greatest concern about the implications of the QMS for the broader issue of sustainability relates to its distributional effects. Phillips notes:

> *The productive capacity of the rock lobster fishery is limited by biological constraints. Leaving aside the possibility of increasing the value of this productivity by using it in ways that yield greater wellbeing benefits in addition to its commodity value, and assuming the commodity value is the same whether it is harvested by a property-rights, rent maximising fishery or by an equal-access rent dissipating or redistributing one, what then is the net benefit to society of greater economic efficiency in terms of revenue production? It will not increase the production of wealth, and rent not dissipated in wages in a labour-intensive, efficiency-constrained fishery, can instead be dissipated in profits and rents in a property-rights, revenue appropriating fishery (1998: 82).*

Phillips argues that economic efficiency is a matter of perspective:

> *A significant economic effect of managing to produce rent is the distribution of the wealth produced in the fishery away from people who work in the fishery and away from their communities, to the capital based property owners of the fishery and ultimately into the pool of global capital (1998: 82).*

In a global economy, Phillips observes (1998: 83), with freedom of capital movement, economic surplus generated from the fishery can go anywhere in the world, just as wealth from anywhere can buy control over part of the industry. "The only wealth from the fishery that can be confidently retained, at least in the first instance, is that portion that is "dissipated" in local content fishing costs". Economic analysis that discounts this and believes that profit and rent represents the only valid measure of the economic benefit of the fishery does not reflect the perspective of local communities. But there are, Phillips notes (1998: 57), individuals and occupations at local, state and national level that gain relative advantage from participating in the consolidation and export of wealth from a region in the service of global economic interests.

The foregoing discussion focuses on the distribution of wealth out of the community, but this may be less important than the effect of promoting wealth inequality within it. As already discussed, inequality caused by the QMS means that fishworkers may have little incentive to protect the resource. Many in local communities might be better off if poaching redistributed the wealth more evenly, or if overfishing or environmental deterioration reduced the production of surplus wealth or rent that sustains the advantage of those with economic power over them. Jealousy and resentment are natural human responses to inequality. Such a situation is not conducive to maintaining, throughout the community, a commitment to sustainability (Phillips 1998: 83-84).

In chapters 2 and 3 the link between social equality and the ability of a society to achieve environmental requirements for sustainability was discussed. A systems-analysis perspective suggests that sustainable fisheries are associated with sustainable, functional communities (Charles 1992, Jentoft 2000). Those characterised by inequality, productivity-sapping competitiveness, disunity, and other attributes of social dysfunction lack the necessary entrenchment of values and institutional mechanisms to successfully implement sustainable patterns of use of fisheries and other environmental resources. The growth of inequality in society can be expected to undermine democratic processes, civic cohesion and the civic commitment of decision-makers. Management of fisheries by property rights mechanisms is not only reflective of poor development of the essential characteristics for sustainability in Tasmanian society, but it also contributes to maintaining them because resources are distributed in ways that increase the strength of established power structures and interests.

Hypothetically, one can consider different management scenarios for the Tasmanian rock lobster fishery. In practice, policy-makers are restricted in what they can do, being largely

bound by the legacy of past policies, which have greatly reduced the ongoing powers of government to regulate the fishery for the public benefit. The imperative to maintain the market value of quota units constrains management to an emphasis on resource rent production. Change would be resisted, not just by quota holders, but also by other rent-seeking sectors with an interest in the fishery. It would also be very difficult for the Tasmanian Government to introduce a resource tax such as a royalty charge of AU $10 per kilogram. Such a tax would appropriate a significant share of the resource rent and hit directly at the property value of quota units. Interestingly, when the Chinese government cracked down in 1999 on evasion of the import tax of approximately AU $8 per kilogram on Australian lobster entering China, which imports much of the Tasmanian catch, Tasmanian processors dropped the beach price paid to fishers by about AU $10 (Williamson 2002: 163). It would seem that the Chinese government is better able to secure resource rent from the fishery than is the government of Tasmania on behalf of the Tasmanian public. The SARS epidemic in China in 2003 also depressed demand and prices for Tasmanian lobster and caused serious economic difficulties for some fishers. Some had leased quota at high prices and found that low beach prices did not allow them to cover their costs. In a quota managed fishery with a high degree of 'virtual' capital costs that need to be covered, a price squeeze can generate pressure to overfish and attempt to evade the quota management system by selling fish outside of the system. Under these conditions, an economic examination of the internal rate of return of the fishery in 2003 might demonstrate worse economic performance by this measure than Morrow found in 1991 when he advocated a QMS.

4.3.6 Conclusion

Regulation of the Tasmanian rock lobster fishery has promoted privilege and exclusion with respect to resource access, thereby exacerbating wealth inequality and social division. Regulation has fostered consolidation and inflation of the capital market value of fishing entitlements at the expense of a wider distribution of resource wealth. It has failed to optimise the potential for resource use to contribute to the broader wellbeing of Tasmanian society. Further, the consequences of regulation constrain the development within Tasmanian society and its institutions of those values and structures essential to social and environmental sustainability (Phillips, Kriwoken and Hay 2002).

The evolution of Tasmania's rock lobster fishery management system included a number of significant steps. Landmarks among these were the introduction of pots at the beginning of the twentieth century, the move to limited entry in the 1960s and 1970s, and the adoption of the quota management system in 1998. In each case it could be argued that vested interests

were served and that broader principles of community equity were compromised. The introduction of pots allowed greater capitalisation of the fishery against the interests and objections of many small-scale fishers. The move to limited entry protected the established operators from competition from potential new entrants. It is notable that this step, which initially served the interests of a particular group of fishworkers, was a cornerstone to the eventual capitalisation of the fishery with the introduction of ITQ. It demonstrates a seemingly inevitable transformation of privileges into forms of private property.

At the beginning of the chapter I discussed how Tasmania's history and social and political development produced institutions and a resource management culture characterised by patronage and vested interest. It is plausible to attribute the evolution of management of the rock lobster fishery, in which vested interests have been served and public wellbeing compromised, to this resource management culture. Comparisons may also be made with the criticisms of ITQ based systems in South Africa (Hersoug and Holm 2000), New Zealand (Duncan 1995) and Iceland (Eythorsson 2000; Hannibalsson 2001; Matthiasson 2001) as discussed in chapter 2. It is notable that in Tasmania there has been little disinterested public opposition to what was essentially the enclosure and privatisation of valuable public resources. With the exception of some university-based academic research (Phillips 1998; Bradshaw 2002; Phillips, Kriwoken and Hay 2002) there has been no objection to these resource management policies from public institutions concerned about their implications for broader issues of social equity and regional economic development. This lack of objection to the dominance of vested interests in the management of public resources supports observations of a poverty of civic commitment in Tasmania's political and resource management culture, a poverty that has serious implications for broader issues of sustainability.

ITQ based management, it must be noted, has also been adopted in jurisdictions, such as Norway and Iceland, which have been widely regarded as socially progressive, egalitarian, democratic and committed to sound environmental policies and civic values. In these countries there have been strong campaigns against the privatisation of fishery resources, but in spite of this, vested interests seem to prevail (Eythorsson 2000; Hersoug, Holm and Ranes 2000). As ITQ is adopted in a growing number of jurisdictions one might conclude that Tasmania's resource management culture is not unique but is perhaps only a version of a common pattern. One might also suggest that a history of social, economic and political repression which I argue has contributed to the development of Tasmania's resource management culture, is also reflective of a rather more common than exceptional history of human experience. Or it may simply be that even the most egalitarian and well-governed

societies find it difficult to resist vested interests and the pressures of political and economic globalisation and so this trend may reflect a common future in a world shaped by neoliberalism.

Lessons from the Newfoundland Case Study?

Charles (1995) strongly linked the collapse of the Newfoundland cod fishery to management dysfunction and identified several key problems. First, he criticised the policy-making environment which excluded the public, the owners of the resource, from involvement in decision-making in the fishery. Instead, government policy-making focused on serving the interests of its industry "clients" rather than serving a broader public interest in the management of the fishery. A similar argument has been made here in respect of the Tasmanian rock lobster fishery. Second, Charles criticised a management system that relied on a total allowable catch (TAC), based on very imprecise science, to safeguard the needs of conservation. This system was linked to allowing the use of potentially damaging, powerful fishing technology (trawling) and to a quota management system that provided incentives for anti-conservationist behaviour. Underwood (1995) concurred with Charles's view, identifying the management system based on single species quota as the root cause of the collapse. Single species quota, a TAC and relaxation of efficiency constraints are all key components of the quota management system for the Tasmanian rock lobster fishery. Is it reasonable, therefore, to draw a parallel between the two fisheries and predict that overfishing and resource collapse will eventuate in the Tasmanian rock lobster fishery? The answer is no, or at least not directly. There are several reasons for this. First, lobster fisheries based on baited pots or traps are, as has been discussed, generally resilient to high fishing pressure so long as an appropriate size limit protects an adequate breeding population. Second, unless social and economic conditions change dramatically, the Tasmanian fishery is capable of being effectively policed. So the Tasmanian rock lobster fishery might be held up as a successful example of sustainable fisheries management. But taking a broader perspective, the management of the fishery has been shown to contribute to inequality, productivity-sapping rent-seeking activity, and other attributes associated with societies that become dysfunctional and cannot serve common interest goals such as sustainability. The consequences of this may impact on the fishery indirectly or contribute to problems of social unsustainability that are far more significant than maintaining a productive fishery. These issues will be explored further in a study of salmon farming and pollution regulation in Tasmania, and in chapter 5 which examines a fishery within the context of Pakistan's social and political environment.

4.4 Salmon Farming and Pollution Management: Private and Public Interest in Tasmanian Resource Management

Figure 4.4 Salmon sea cage farm in North West Bay Tasmania

Overfishing is one possible cause of the biological failure of a fishery, the one that is generally the focus of primary attention and regulation in fisheries management. Fisheries can also decline and fail as a consequence of habitat disturbance that alters the capacity of an ecosystem to sustain the stocks upon which productive fisheries depend. Pollution is a significant cause of this sort of habitat disturbance. The ability of a society to effectively manage pollution to fishery habitats (so as to avoid adverse social, economic and environmental consequences) is likely to be dependent on the same qualities of community solidarity, cooperation and caring about each other's interests, and the absence of opportunism, conflict and destructive competitiveness that Jentoft (2000) associated with sustainable fishing communities[96]. The ability to promote common interests over narrow sectoral ones may be even more critical than in the case of simply managing competition over fish stocks. This is because the connection between the interests that benefit from polluting activities and those that are impacted by the effects of pollution may be less direct and obvious, and the values and interests affected are likely to be more widely dispersed, making it more difficult to organise effective, collective action in their defence. Thus, resource management policies that promote the divisiveness associated with greater social inequality and the proliferation of rent-seeking activities, as has been argued for Tasmania's quota management system for the rock lobster fishery, can undermine the characteristics in

[96] Legitimate and ethical leadership has also been identified as a critical requirement (see, for example, Novaczek *et al.* [2001]).

Tasmanian society and its social structures and political institutions upon which the protection of its marine environment from potential sources of pollution depends. This idea will be explored with regard to management of the pollution from Tasmania's salmon farming industry and other sources in the sheltered coastal waters of southern Tasmania.

4.4.1 Salmon Farming in Tasmania

Salmon farming based on marine sea-cage culture has become an important industry in southern Tasmania, particularly in the waters of the Huon Estuary, Port Esperance and the D'Entrecasteaux Channel. The industry grew rapidly following its introduction to Tasmania in the mid 1980s. Initially this expansion occurred in a fairly *ad hoc* manner, and there was inadequate information and understanding of the environmental impacts of salmon farming to provide for effective environmental decision-making. Industry expansion was, by the late 1980s, becoming increasingly hampered by objections from the public and other interest groups (DELM 1993). Tasmanian government policy has actively promoted expansion and specific legislation, the Marine Farming Planning Act, was introduced in 1995 to provide a legislative framework to facilitate expansion and regulation of the industry, to manage objections and to consolidate control over access to leases and permits within one department, and to address some of the concerns relating to environmental impacts. Total salmonid production for 2001/2002 was 15,633 tonnes with a farm gate value of AU $111.5 million, a considerable increase from 1997/1998 when 7,069 tonnes valued at AU $63 million were produced. Direct employment in salmonid production in 2001/2002 was 290, up from 207 in 1997/1998 (DPIWE 2004).

Opposition to salmon farming has arisen over the impact of farming on recreational and visual amenities of waterways and over the effects of pollution discharged from salmon farms, especially the discharge of nutrient rich effluent which can contribute to nuisance algal blooms and other symptoms of eutrophication. These concerns and conflicts are common in other countries where salmon farming occurs[97].

Pollution from Salmon Farming and its Environmental Impact

Environmental impacts associated with marine farming are described in Marine Farm Development Plans for the region (DPIF 1996; DPIF 1997e) and in a number of other

[97] Other concerns associated with salmon farming in the northern hemisphere are less significant in Tasmania. Salmon farming in Tasmania makes less use of pesticides and antibiotics, and the tendency of salmon farms to provide sources of disease and parasites that affect adjacent wild salmon populations is not much of an issue in Tasmania because there are no native salmon stocks in Tasmanian waters.

sources, including Ritz, Lewis and Shen (1989) and Woodward (1989). These impacts include the deposition of organic matter on the sediments immediately beneath farm cages and the release of soluble nutrients, including nitrates and ammonia, into the water column.

A considerable proportion of finfish farm wastes settles to the sediments immediately beneath the cages. Nutrient loading of the sediments is a significant concern and a critical management issue for marine farmers. The buildup of organic material under farm cages can lead to anaerobic conditions in the sediments and the production of methane and hydrogen sulphide. This can affect the health and productivity of the fish being cultured on the site. These localised impacts have been studied and discussed in some detail (Ritz, Lewis and Shen 1989; Woodward 1989; DPIF 1997e), but of greater significance in relation to the impact on the wider environment of the water body as a whole are the soluble wastes, released directly by the fish, and those released from enriched sediments.

Most of the phosphorous released from salmon is in solid form and settles to the sediments. Most of the nitrogen is soluble, in the form of ammonia (Woodward 1989). Estimates of nutrients released range from 52-55kg total nitrogen, and 3-16kg total phosphorous per tonne of salmon produced (Bergheim, Aabel and Seymor 1991; Enell 1995; Meggitt 1998). More recent estimates using modern feeds include figures provided by Gibson's Limited[98] (1998) in their feed management guidelines. Notably, these estimates of 56.4-78.0 kg total nitrogen and 15.1-19.9 kg total phosphorous per tonne of salmon produced do not show a reduction in the amount of nutrients discharged using modern feeds than the quantities referred to in earlier studies.

The quantity of nutrient discharge relates directly to the quantity of feed used and the quantity of fish produced (assuming good quality feeds and efficient management practices are followed). Thus, the environmental impact of salmon farming can be regulated by limiting either the amount of feed that may be used or the amount of fish that may be produced at a particular farm site or in a particular body of water. The capacity of a particular water body to assimilate the nutrient pollution from salmon farming as well as from other sources depends on a complex range of factors, including flushing or dilution rates, background nutrient levels, temperature, and turbidity. These factors may vary considerably according to season, tides and other variable factors such as wind and rainfall. Thus, a quantity of nutrient discharge that has little adverse environmental effect at certain times of year may, at others, cause environmental problems. In winter, for example, large

[98] The principal supplier of feeds to the Tasmanian industry.

quantities of nutrients may be discharged into Tasmanian coastal waters with little apparent effect, but in summer, when background nutrient levels are lower and light and temperature conditions are more favourable to phytoplankton growth, the same quantity of nutrient discharge can contribute to noxious algae blooms. The ratio of nitrogen to phosphorous can also affect the likelihood of nuisance algae blooms developing (AEC 1987). The degree of impact that is deemed acceptable is also, to some extent, subjective, however guidelines have been developed (ANZECC 1992). Often it is salmon and shellfish farming interests that are most directly affected by, and therefore most sensitive to, the environmental impacts associated with nutrient enrichment. However, these impacts also affect the environment generally and other waterway activities, and they have implications for biodiversity and the health of other species which may include commercially important fish stocks. Environmental issues relating to fishfarm effluent have also been examined by Solbe (1982); Warrer-Hansen (1982); Phillips, Beveridge and Muir (1985); Kelly, Stelltragow and Bergheim (1996); Kelly and Cripps (1998); and Wee (1998).

Regulation of Salmon Farming Pollution Discharge

For many years salmon farmers in Europe have been regulated by legislation limiting the amount and composition of feed that may be used at particular farm sites (Gibson's Limited 1998). This has not been the case, so far, in Tasmania where the government has been reluctant to hinder industry expansion with this sort of regulation. Self-regulation was the general practice, sustained by arguments that the industry itself would be most affected by any problems due to eutrophication and would therefore behave responsibly. It is also difficult to determine an appropriate production limit for a given site or water body due to the complexity of the issue, as discussed. However, the absence of regulation of salmon farm pollution has been a sensitive issue due to community concerns and opposition to salmon farming generally, for a variety of reasons[99]. This opposition often makes use of the pollution issue as the basis for complaint because it seems to carry greater legitimacy than other, less tangible aesthetic concerns. This is because salmon farm pollution is comparable to other polluting activities that produce effluent discharge and that are regulated by long established precedents of environmental legislation.

An issue that can arise is competition from other activities that also use waterways as a waste management resource. Sewage treatment-plants are an obvious example of a competitor

[99] Where science is not capable of providing "the" answer, the fact that aesthetic, spiritual, equity, biodiversity and quality of life issues are deemed unimportant (unless these can be demonstrated to be also economic), becomes a critical impediment to sustainability. The only way out is through a dramatic shift in human's relationship with nature.

with salmon farms over the use of waterways as a receiving body for nutrient discharge. Agricultural activity that produces nutrient rich run-off is another. This competition can add a further complicating dimension to the management and regulation of salmon farming in places where the capacity of the waterway to assimilate pollution (subject to an acceptable degree of environmental impact) is a limiting factor. There are costs associated with limiting nutrient discharges. These include the costs of nutrient removal, for example in sewage treatment plants. They can also include opportunity costs associated with developments that are foregone in order to avoid the pollution that they would otherwise produce. Consideration of pollution and amelioration costs associated with salmon farming and other activities can be used as a basis for integrated coastal management (Folke, Kautsky and Troell 1994; 1997). Two approaches for determining the carrying capacity of salmon farming in Tasmania's coastal waters and providing a basis for integrated land and marine resource planning and management are examined here. These can be considered as a "scientific approach" and a "political economy approach".

4.4.2 A Scientific Approach to Estuarine Management – System Modelling

The Division of Marine Research of the respected Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) conducted a study of the Huon Estuary in order to develop a scientific basis for integrated catchment management relevant to aquaculture and the environment in this important salmon growing area. The study commenced in the mid 1990s, cost over three million dollars, and was finalised in June 2000 (CSIRO 1997; 2000a). This study investigated the sources, distribution and cycling of nutrients in the Huon Estuary. It traced the links between nutrients and algal blooms and measured the comparative effects of nutrients from human activities, including fish farms, and nutrients from natural sources. The study sought to address "the inadequacy of knowledge of the physics, chemistry and biology of the Huon Estuary system" (CSIRO 2000a: 2) and so satisfy general community concerns about the environmental impacts of salmon farming and also to provide a greater degree of certainty about the capacity of the environment to cope with the impacts, without undue adverse effects, to allow for the projected expansion of the salmon farming industry to proceed in the confidence that it would not be threatened by any unanticipated environmental repercussions of its own pollution.

The study examined tidal motions, winds, river flows, and currents, salinity, optical absorption characteristics, nutrients and water quality and phytoplankton dynamics of the waterway and attempted to generate models based on these extremely complex characteristics. The purpose of the models was to predict the effects of increased nutrient

loading associated with increased salmon production. A critical concern was the potential for an increase in the incidence of algal blooms, particularly blooms of the toxic dinoflagellate, *Gymnodinium catenatum,* that periodically occur in the waterway. Not surprisingly, given the complexity of the system and the factors involved, the report identified numerous potential sources of error and acknowledged a significant degree of uncertainty (CSIRO 2000a: 236, 280), and the report advised "that a formal risk assessment of the system's carrying capacity should be carried out to underpin any further expansion of finfish farming in the Huon Estuary" (CSIRO 2000a: 280). This advice, with its qualifications and recommendations for more research, was a disappointment for the industry and government regulators who had hoped that the Huon Estuary project would itself provide both the information and a sense of "scientific certainty" to enable confident expansion, with the authority of "science" providing the legitimacy to quell community concerns.

The report found that nitrogen was the limiting nutrient on phytoplankton growth in the middle and lower Huon Estuary and was, therefore, the key nutrient of concern (CSIRO 2000a: 270). Nitrogen loads from agricultural runoff in the catchment were found to be comparable with the quantity delivered by fish farms in the estuary. The study identified uncertainty in the origin of nitrogen in bottom waters during summer and indicated that this had major implications for the assimilation capacity for fish farm wastes, and it noted that "it is the impact of finfish-farm nutrient loads on estuary water and sediment quality at the scale of the entire estuary that is likely to determine the sustainable carrying capacity" (CSIRO 2000a: 257). Assessing the likely consequences of salmon farming expansion, the study reported:

> *According to the model, doubling 1997 finfish-farm loads would carry some risk of increased frequency or density of summer blooms, while quadrupling loads would put the system on the brink of N saturation, and would substantially increase the risk of prolonged blooms. Increasing loads by a factor of 10 would completely change the nature of the system, producing elevated DIN and large blooms throughout summer (CSIRO 2000a: 257).*

The degree of error and uncertainty in this assessment was not provided, at least not in a readily accessible form, and the prognosis for the likely effects of doubling and quadrupling salmon farming inputs allowed for overlap given their qualitative and generalised nature. (Current levels of discharge, and any increase in nutrient discharge associated with industry expansion, would clearly have a significant impact on the system.) The report did not therefore provide a "scientific" estimate of "acceptable" carrying capacity that the industry and government regulators could adopt with confidence and present to the public.

A comparison could be made with a fishery stock assessment process as discussed by Finlayson (1994) in chapter 3, where managers demand a number to work with, industry demands that it be a big number, and scientists are under pressure to provide one with a level of certainty that is impossible to obtain when dealing with complex, dynamic systems. The response that more research and funding is needed can, however, seem a little self-serving.

When dealing with risks in an environment of unavoidable scientific uncertainty, political decision-making can be based on a range of values and interests. The question is usually about whose interests and which values predominate. Government resource managers often tend to favour the interests and values of industry "clients" and exclude the public, the owners of the resource, from the decision-making process[100]. One mechanism frequently used to exclude the public from political decision-making processes is to deny them access to information. The Huon Estuary Study could be criticised for not presenting information in a form that is readily comprehensible to non-professional members of the public. The report also noted (CSIRO 2000a: 234) that while farmsite-specific information on nutrient discharges had been used in the modelling, this information was not presented in the published report. The explanation provided for this omission was that the salmon farming industry claimed that information of this nature had commercial significance and should remain confidential. Overall, the study provided some useful scientific insight into the nutrient dynamics of the Huon Estuary, and some qualified speculation about the likely ecological consequences of industry expansion, but it did not address the political and economic issues of resource competition and allocation, and other conflicting values and interests that are at the heart of the fundamentally political process of resource decision-making. An ancillary report clarifying some of the issues for the marine farming industry noted:

> *The considerable level of uncertainty in these predictions, discussed above, is uncomfortable, but hardly unusual in managing natural environmental systems. This uncertainty creates two obvious kinds of risk for management of finfish farming in the Huon Estuary. There is risk that feed limits will be set lower than needed to achieve agreed environmental objectives, resulting in foregone socio-economic return to industry and the region. There is a risk on the other hand that limits will be set too high, resulting in unacceptable environmental damage, and potentially also in economic losses to the industry. Managers need to balance these risks, taking into account socio-economic and environmental values (CSIRO 2000b: 10).*

[100] Charles (1995) identified this as a factor contributing to unsustainability in the Newfoundland cod fishery as discussed in chapter 3.

The simplistic view expressed here reflects a close association with the perspective of salmon farming interests. It shows no appreciation that there are also socio-economic and environmental costs to other sectors associated with lower levels of pollution discharge than those that the salmon industry and its regulators might consider optimal from their own perspective.

4.4.3 A Political and Economic Approach to Integrated Coastal Zone Management

The Underlying Concept

Folke, Kautsky and Troell (1994) discussed a theoretical approach for integrating management of the pollution from salmon farms with other catchment activities as a basis for integrated coastal management. They examined the ecological and economic costs associated with salmon farming in sea cages and argued that society bears the costs of salmon farming pollution where the polluter–pays principle is not applied. The environmental effects of salmon farming pollution include toxic algal blooms and other symptoms of eutrophication, which have socio-economic as well as environmental impacts in coastal areas. They suggested that one way of assigning a value to the costs of salmon farm pollution is to base it on the willingness of society to pay for treatment plants to abate pollution from human sewage, which is similar in many respects to pollution associated with salmon farms. They noted however that the (Swedish) salmon farming industry (in 1994) would not have been economically viable if it had been required to pay a pollution charge calculated in this way, equivalent to the pollution costs that were externalised to the environment and society as a whole. Folke, Kautsky and Troell (1994: 173) referred to the Rio declaration on environment and development as stating "that unsustainable patterns of production and consumption should be reduced and eliminated, and that national authorities should endeavour to promote the internalisation of environmental costs" using economic instruments and "taking into account that the polluter should, in principle, bear the cost of pollution". Their paper was understandably a challenge to salmon farming interests. Black *et al.* (1997) provided a critical response, acknowledging that there was a potential risk of eutrophication from intensive fish farming but arguing that eutrophication would not necessarily result from farm related nutrient discharge, especially in situations in which nutrients were not a limiting factor on phytoplankton growth. They also debated some details in the economic analysis provided by Folke, Kautsky and Troell (1994), arguing that externality costs only exist in situations where there is a competing resource user, and that marginal costs could not be applied to increased production levels because the value of resources and products varies with availability.

Folke, Kautsky and Troell (1997) provided a detailed response to this critique. They argued that the position of Black *et al.* (1997) on eutrophication only differed from their own due to details of definition. They viewed eutrophication, as defined by Nixon (1995), as "an increase in the rate of supply of organic matter to an ecosystem". They were concerned with the large scale effects of eutrophication on coastal ecosystems from the perspective of society as a whole, as opposed to the perspective of Black *et al.* (1997) which, they suggest, took a more limited view, only acknowledging eutrophication as occurring in association with any particular salmon farm if there was an observed increase in phytoplankton production in the immediate locality.

Folke, Kautsky and Troell (1997) defend their economic analysis of the costs of eutrophication from salmon farming, which they explain is based on the viewpoint of the whole of (Swedish) society. They agree that if society does not regard nutrients from sewage, agriculture or other sources as a problem – then nutrients from salmon farming will be no problem either. But they point out that the waters around Sweden are already "eutrophicated" and a political decision has been made to reduce pollutants. They point out that to tax people to pay for sewage treatment to remove nutrients, while at the same time allowing a fish farmer to freely release nutrients, is not cost effective. They reiterate their initial argument (1994): that society subsidises fish farming when the cost of nutrient abatement is lower for fish farming than for sewage treatment.

The Folke, Kautsky and Troell (1994; 1997) versus Black *et al.* (1997) debate is relevant to the regulation of salmon farming and of other polluting activities in the Huon Estuary and the adjacent D'Entrecasteaux Channel that together comprise the major salmon producing area of southern Tasmania. Periodic 'nuisance' algal blooms, a symptom of eutrophication, are evident in these waters, and there is an acknowledged need to reduce pollution inputs. This has been incorporated into costly abatement projects for sewage treatment plants and other point sources of pollution. There are also catchment management plans and land-based planning development controls aimed specifically at reducing nutrient run-off into the waterways. Under these circumstances, Black *et al.* (1997) would agree with Folke, Kautsky and Troell (1994; 1997) that an externality is present in the form of social, economic and environmental costs associated with pollution from salmon farms in these waterways. This concept was tentatively explored (Phillips 1999; 2000) in a project to develop guidelines for integrated land and marine resource planning in the D'Entrecasteaux Channel and North West Bay (which lies at the Channel's northern end). This project commenced in March 1999 and was largely completed by the time the Huon Estuary study

released its report in 2000. The findings of the two projects were not incompatible, but reflected different approaches. The broader consideration of a range of stakeholder interests in the D'Entrecasteaux Channel Project gave it a more political and contentious orientation. Examination of issues, stakeholder interactions and political consideration in the project provide additional insight into the politics of marine resource management and sustainability in Tasmania.

4.4.4 The D'Entrecasteaux Channel and Catchment Integrated Land and Marine Planning Project: A Case Study

Project Description and Background

The D'Entrecasteaux Channel (locally referred to simply as "the Channel") is a narrow body of water in southeast Tasmania. It has a north-south orientation and separates Bruny Island from the Tasmanian mainland. The Channel is about 50 kilometres in length and is connected in the north via a narrow opening to the Derwent Estuary, and in the south with the Huon Estuary and the Southern Ocean.

The Channel region is noted for its scenery and water based recreational opportunities. It lies within Kingborough Council which rates highly in terms of socio-economic indicators (ABS 1999). It is close to the population centre of Hobart and the amenity provided by the waterway and adjacent land, mainly rural and bush land, supports a wide range of economic and lifestyle activities. These include lifestyle residences, tourism, recreational fishing, sailing, ocean kayaking, marine reserves, marine education facilities, marine industries and a range of agricultural activities including marine farming. As previously noted, the Channel and the adjacent Huon Estuary is Tasmania's principle salmon growing region, producing over 7000 tonnes of salmon in 1999 and more than double that amount in 2002. The rapid growth of this industry and its proposed further expansion had, in 1999, become a cause of conflict with other uses. There had been conflict over environmental and amenity impacts of marine farms and also conflicts between marine farming interests, which depend on clean water, and other potentially polluting developments. These conflicts were particularly intense in North West Bay. Addressing these resource use and planning conflicts had been complicated by jurisdictional issues. Marine farming development was regulated by the Marine Farming Branch within the Department of Primary Industries, Water and Environment (DPIWE), an agency of the state government. Land based planning generally fell under the jurisdiction of local government, in this case Kingborough Council. It was recognised that there were significant areas in which land and marine developments in this coastal region had the potential for spillover effects to impact on each other. This predicated

the need for integration between land and marine planning processes to overcome problems linked to jurisdictional separation. It was partly to address this need that the D'Entrecasteaux Channel Integrated Land and Marine Planning Project was initiated.

Project Stakeholders and Environmental Objectives

Kingborough Council took the leading role in the project and a range of other stakeholders were included on the steering committee. These included representatives of Kingborough Landcare Group (a local volunteer conservation organisation), Hobart Ports Corporation (a planning agency with jurisdiction over ports and navigation issues), the adjacent Huon Valley Council, the Local Government Association of Tasmania, Parks and Wildlife Service (a Branch of the Tasmanian state government Department of Primary Industry, Water and Environment (DPIWE)), Coastal Program (DPIWE), Huon Healthy Rivers Project (based at Huon Valley Council), Forestry Tasmania, Huon Tourism Association, Marine Farming Branch (DPIWE), and Aquatas and Tassal (two of the state's largest salmon farming companies with production sites in the Huon-Channel region). Aquatas was particularly active in the project because its production sites were located in North West Bay and the northern reaches of the D'Entrecasteaux Channel.

The Australian (Commonwealth) Government was involved in the project as the provider of a grant under Environment Australia's *Coast and Clean Seas* program, which was the major source of the project's budget. To qualify for funding from this source, the project was required to promote the objectives of the *Coast and Clean Seas* program, which were:

> *to ameliorate pollution problems in Australia's coastal areas; to protect the environment in Australia's coastal areas; to ameliorate threats to Australia's marine biodiversity; and to develop an oceans policy for Australia.*

The emphasis on marine environmental concerns directed an environmental perspective for the project with a particular emphasis on managing pollution sources. In addition, the project aimed to "relate and integrate land, coastal and marine environmental imperatives to deliver a strategic environmental framework for the Kingborough Council and its partners in the southern region of the state." The environmental perspective for the project was to prove difficult for some of the development oriented stakeholders to deal with because their development interests would inevitably increase, rather than ameliorate, environmental pressures, thus conflicting with the objectives of the *Coast and Clean Seas* program.

The project was relatively small with a total budget of approximately $100,000, and this included some 'in kind' contributions of value from project stakeholders. The major

component of the budget was allocated to the employment of a project officer[101] for the one year timeframe allocated to the project, with additional funds going for printing and publishing costs, and to hire a consultant-facilitator to assist with public meetings and workshops. The scope of the project was quite limited. The principal tasks were to prepare an issues paper, a *State of the Waterway Report,* from which a strategic management plan and strategic action plan would be developed. The project had no planning powers or powers to enforce any outcomes, and compliance with any recommendations would be entirely voluntary on the part of stakeholders. The role of community education and participation was also emphasised in the *Coast and Clean Seas* program.

North West Bay: Site Description and Issues

The project focused on addressing issues of resource conflict and environmental impact in North West Bay where they were particularly intense. North West Bay is a trapezoidal shaped body of water which is indented into the "Tasmanian mainland" side of the D'Entrecasteaux Channel. It covers approximately 2000 hectares, has a maximum depth of about 30 metres, and its waters are essentially marine, like those of the Channel itself. The catchment of North West Bay is relatively small and the effect of freshwater inflows from several tributary streams is generally localised. Tidal range in North West Bay is a maximum of about one metre and averages only about half a metre. Consequently, tide induced current and flushing is limited. Mixing and exchange with the waters of the Channel is primarily driven by wind, and therefore its rate is variable, being dependent to a significant extent on the vagaries of the weather (Matthews and Volframs 1978). The capacity of the water body to receive and absorb pollutants, including nutrients, is therefore variable and depends to a large extent on weather conditions. Hallegraeff and Westwood (1994) and Wotherspoon *et al.* (1994) noted the significance of weather as a contributing factor in the incidence of toxic algal blooms in the adjacent Huon Estuary. Factors affecting catchment water quality from sources that influence the water of North West Bay have been investigated (Gallagher 1996; Green 1998).

The marine waters of southeastern Tasmania, including the D'Entrecasteaux Channel and North West Bay, are influenced by two major ocean currents. During late summer the East Australian Current can extend its influence as far south as to affect the waters of the Channel. These subtropical waters are relatively warm and nutrient poor. In the cooler months from August–January, cooler, nutrient-rich subantarctic waters are pushed north and east by prevailing winds and enter the southern end of the D'Entrecasteaux Channel. The

[101] I was employed in this role.

interplay between these two water masses has a significant influence on the nutrient and algal dynamics in coastal and estuarine waters in the region (Nyan Taw and Ritz 1978; 1979; Harris *et al.* 1987; Coughanowr 1997; Phillips 1999). North West Bay periodically experiences nuisance algal blooms, particularly during summer, and other environmental impacts, such as a decline in sea-grass beds in the bay, have been reported and linked to nutrient enrichment. Although most of the Channel catchment is characterised as having a low level of impact on the waterway (Graddon 1997), significant levels of mercury and zinc have been reported in the sediments of North West Bay (Bloom and Ayling 1977).

Resource Conflicts in North West Bay

In 1999 several competing and conflicting types of development were proposed for North West Bay and its catchment. These included proposals for increased residential development around North West Bay, and also proposals to expand production from salmon farming in the bay itself and in the adjacent northern reaches of the D'Entrecasteaux Channel. Both of these had the potential to generate increased nutrient discharge and can be regarded as competitors for use of the waterway as a sink for nutrient wastes. Existing sources of nutrient discharge, such as poorly performing sewage treatment plants and runoff from agricultural lands, were also recognised as issues to be addressed. Kingborough Council had applications in process for grants under the Federal Government's National Heritage Trust *Coasts and Clean Seas* program to assist with the cost of treatment plant upgrades. This program had also contributed funds towards an ongoing catchment management plan for North West Bay River, the largest tributary entering North West Bay, that included measures to reduce nutrient runoff.

Two industrial developments on the shores of North West Bay were also of concern. These were a newly established shipbuilding factory near Margate that constructed large aluminium catamarans, and the proposed development of a deepwater port at Electrona to handle bulk commodities such as woodchip exports (Hobart Ports Corporation 1997). Opposition to these industrial developments brought marine farmers and shoreline residents into alliance. These traditional opponents both shared concerns about potential impacts on water quality and the visual and aesthetic amenities of the Bay (Phillips 1999: 41-59).

State of the D'Entrecasteaux Channel Report

Once the preliminary organisation had been accomplished and a project officer appointed, the Steering Committee met (22/4/1999) to identify priority issues for the project to address. The Steering Committee determined that managing pollution and maintaining water quality, particularly in North West Bay, was the priority environmental issue for the project.

Another key issue was to facilitate integration of land and marine resource planning and management. The project would focus on North West Bay where problems were most intense and it was expected that outcomes would be relevant to the wider Channel region. Following this introductory meeting, work commenced on the preparation of an issues paper, a "State of the Waterway report". This was eventually published as the *State of the D'Entrecasteaux Channel* report (Phillips 1999), but the process of preparing the report and obtaining Steering Committee endorsement prior to publication was to involve a considerable degree of conflict within the committee.

A draft of the *State of the D'Entrecasteaux Channel* report was prepared in the two months following the initial meeting and presented to the Steering Committee in June 1999. The report identified a range of values and uses associated with the land and marine resources of the region. It also identified and discussed a wide range of threats and pressures on the environmental resources of the region, with a particular focus on those subject to resource planning and management conflicts and having implications for the sustainability of the marine environment. Identification of existing and potential sources of pollution was extensively covered. The report included a study quantifying nutrient inputs into North West Bay from catchment land use, sewage treatment plants, leachate from a municipal tip site and from the one salmon farm located in the bay. This comparison of the sources of nutrients discharged into North West Bay was to become a focus of contention. It indicated that considerably more nutrients were discharged into the bay from the salmon farm than from sewage treatment plants and other point sources[102] (Phillips 1999: 88).

Response of Salmon Farming Interests to the Nutrient Analysis

At the Steering Committee meeting on 22/6/1999 the response of the committee to the draft report was generally positive:

> *the Steering Committee expressed general approval of the standard of the (State of the Waterway) report in regard to meeting performance indicators. Some members expressed concern about the wording in some parts of the report and felt minor changes were needed to ensure objectivity was maintained. Each member had the opportunity to detail points of concern in the report and recommend additions, omissions and word changes. Some members needed more time to review the report more thoroughly. The Committee agreed to meet again in a couple of weeks to approve final amendments to the draft (Approved Minutes of Steering Committee meeting 22/06/1999).*

[102] The largest catchment source of nitrogen was runoff from agricultural and forest land but the figure of 57 per cent contained in the report probably over-estimated this source.

Aquatas praised the report generally but indicated that there were a few things they were concerned about relating to some of the references to salmon farming in the report. The Marine Farming Branch representative requested more time for the Marine Environment Branch of DPIWE to consider the report before commenting on it. The Marine Farming Branch was particularly concerned about the North West Bay nutrient analysis and requested information on how the land-based nutrient sources had been estimated[103]. Details of the Council's nutrient study were provided to the Marine Farming Branch and a follow up meeting arranged involving the project officer and representatives of Aquatas, the Marine Farming Branch and the Marine Environment Branch (within the Marine Resources Division of DPIWE) in order to clarify the issue.

At this meeting and in further discussions, the Marine Environment Branch and Aquatas adopted an increasingly hostile approach. This and other developments were discussed in a Steering Committee meeting on July 15, 1999. From the minutes of the meeting:

> *The project officer briefed the Committee on a number of matters arising from the previous meeting:*
>
> - *A telephone call to the project officer on July 6th, from a Mr. Colin Dyke, a marine farming industry activist, who expressed concern about the content of the report and suggested that significant changes should be made to it. The project officer informed Mr. Dyke that the matters he had raised were the business of the Steering Committee and should be addressed by its members at their meetings.*
>
> - *A meeting with Tony Thomas, Angus McNiel, and Gwen Fenton (Senior Environmental Policy Officer, Marine Resources, DPIWE) held on 8th July 1999. This meeting had been arranged following the last meeting to discuss the issue of nutrients and other matters (Marine Farming Branch had requested more time to consider these aspects of the report). At the meeting Ms. Fenton expressed the Department's (DPIWE) view that the report did not meet all of the objectives listed in the application for the NHT grant, and would require considerably more time and work to improve. Ms Fenton said the Department was disappointed in the report and that the Secretary, Kim Evans would be writing to the Chairman of the Steering Committee (Michael Ball) to*

103 Land-sourced nutrient discharge estimates were based on an existing study (Emmett 1998) by staff at Kingborough Council. This addressed pollution sources and environmental management matters that were within the Council's various areas of responsibility. These included catchment management, planning scheme environmental controls, and improvements to sewage treatment plants and other facilities. This study did not include estimates of nutrient discharge from salmon farming activities in the Bay. Estimates of nitrogen and phosphorous pollution from the salmon farm in the bay were developed with reference to literature sources and were based on an estimated 500 tonnes production. This was combined with the information on land based pollution sources to build a more comprehensive study of total nutrient inputs into North West Bay from human activities.

express these views. Ms. Fenton indicated that other members of DPIWE represented on the Steering Committee had discussed their positions regarding the SOW report and had a common view. The project officer suggested that Ms. Fenton's comments should be shared with the rest of the Steering Committee at the next meeting. There was no discussion about specific parts of the report; the issue of nutrients was not discussed. Salmon production figures for North West Bay were not provided to the project officer to allow them to be incorporated into the nutrient study for North West Bay in the report.

- *A letter addressed to Michael Ball was received from Kim Evans on 15 July, prior to the SC meeting. The letter stated that the report did not meet all the objectives in the project proposal. It emphasised DPIWE's representation on the Steering Committee (with 3 representatives) and made the point that DPIWE could not approve public release of the report unless significant modifications were made.*

The Project Officer informed the SC that a paper addressing the objectives relating to compilation of plans, policies and other instruments, and analysis of agency roles was being prepared but had been delayed by concerns that had emerged since the last meeting regarding the SOW report.

Amendments to the Draft SOW report

The Project Officer briefed the SC on amendments that had been made to the report based on information provided by SC members since the previous meeting.

Nutrients

The section on nutrients had not been updated as no new information had been obtained (Approved Minutes of SC meeting 15/07/1999).

The letter referred to from Kim Evans, Secretary of the Department of Primary Industries, Water and Environment, to the Steering Committee Chair (12/7/1999) raised unspecified concerns that the report did not fully meet the objectives outlined in the project proposal. The Secretary emphasised that the Department had three representatives on the Steering Committee (Parks and Wildlife, the Coastal Program and the Marine Farming Branch) and stated that DPIWE could not approve release of the *State of the Waterway* report for public comment unless significant modifications were made to it. He also assured the Chair that the Department was willing to provide information and advice to ensure that "we achieve an acceptable outcome for the project"[104].

[104] The Secretary's letter was interpreted is having the intent to stall, obstruct and censor the project.

During this meeting it was agreed that the project officer would work through issues of concern in "working group" meetings with the Marine Farming Branch and Aquatas and make any necessary corrections prior to the next Steering Committee meeting. In these working group meetings representatives of Aquatas and the Marine Environment Branch (DPIWE) initially attempted to discredit the North West Bay study where it dealt with nutrient inputs from salmon farming. They claimed that the figures used in the study (for example 50kg total nitrogen per tonne of salmon produced) were excessive and based on out of date information. They claimed that improved feeds and production methods produced significantly less pollution than the levels reported in the earlier studies referred to in the report. They also claimed that the one salmon farm in North West Bay produced less than the 500 tonnes per year production estimate used in the study. Aquatas and the Marine Environment Branch declined, however to provide correct figures in place of those they challenged, arguing that the information was "commercial in confidence".

In response to these complaints the project officer obtained additional, up to date information from the manufacturer of the salmon feeds used by the industry (Gibson's Limited 1998). This confirmed that the amounts of nitrogen and phosphorous pollution produced using modern feeds did not differ substantially from the quantities referred to in earlier studies. In fact this authoritative source showed that the figures for nitrogen and phosphorus pollution, relative to salmon production used in the study, were not excessive, as had been claimed, but were in fact conservative, contradicting statements made earlier by Aquatas and the Marine Environment Branch. At this time it was established that the Marine Environment Branch did not routinely collect farm-site specific information on production and food conversion rates from which pollution figures could be calculated; marine farmers were required to provide this information only if requested to do so by the department (Phillips 1999: 53).

The events discussed above established that the estimated quantities of nitrogen and phosphorus pollution from salmon farming in North West Bay were reasonably accurate. It was also clear that the salmon farming industry and government regulators wished to avoid public disclosure, particularly in a site-specific context, of the extent of nutrient discharge from salmon production in a manner that allowed easy comparison with the nutrient contribution of other pollution sources.

The project had reached an impasse. The Department (DPIWE) and the salmon farming industry did not want information on the quantity of salmon farm pollution to be publicly disclosed in an accessible manner, nor did they wish to be seen to be attempting to suppress this information, hence the vague and unspecific nature of the concerns expressed in the

Secretary's letters. Yet this information was clearly important to the project objectives. Information presented in the draft report indicated that nutrient pollution was the most significant environmental problem for the region's waterways, and while other pollution sources were acknowledged and were being addressed, pollution from salmon farming, while clearly substantial, was not, and would increase substantially with industry expansion. The integrity and relevance of the project, with respect to the *Coast and Clean Seas* program objectives, clearly depended on it addressing the issue of pollution from salmon farming as well as other sources, even if this was opposed by the interests of state government agencies aligned with the marine farming sector which had so explicitly expressed their strength of representation on the steering committee.

Only one member of the steering committee really took a strong stand on the issue. This was the member representing the Kingborough Landcare Group (this member was also the Deputy Mayor of Kingborough Council). In response to the stonewalling tactics of DPIWE and Aquatas, she approached the media and reported some general observations on the nutrient study of North West Bay and complained that Aquatas and the Marine Farming Branch of DPIWE would not reveal production figures that would be indicative of the pollution produced by salmon farming in the bay.

Aquatas and DPIWE objected strongly to the public discussion of these issues in the media. The Secretary of DPIWE wrote again to the Chair of the steering committee (16/8/1999).

> *Dear Mr Ball*
>
> *I am writing to advise you of my continuing concerns over the management of the National Heritage Trust-funded D'Entrecasteaux Channel Integrated Land and Marine Project.*
>
> *Recent media reports quote a member of the steering committee referring to information said to be contained in the report as though the report had indeed been released. I have already advised you of my concerns regarding the structure of the draft study and its apparent shortcomings with respect to the objectives stated in the application. It now appears that the information being gathered is being quite improperly used before it is endorsed by the responsible committee.*
>
> *I should perhaps explain that my own Department's representatives on the steering committee are there not only to provide what may be useful expertise, but to ensure the prudent use of NHT funds. We perform this function on a number of such projects, and are aware that our prudential presence is of assistance in having projects approved for funding.*
>
> *I am most concerned that this function (and through it the standing of this Department with the NHT) is not compromised. It would be difficult for me to justify our continuing support of, and participation in, the project if there were to be any further improper release of information or inadequate progress towards addressing the project objectives.*

I therefore ask that you keep the draft study confidential until it has been ratified by the steering committee and released for public comment, and ensure that its contents properly address the objectives described in the application.

Yours sincerely

(Kim Evans)

SECRETARY

The Secretary of DPIWE and the Chair of the project would both have been aware that Kingborough Council had several applications for NHT funds pending and there was no great subtlety to the letter's implications.

This letter from the Secretary was presented to the steering committee at the next meeting (26/8/1999). At this meeting both Aquatas and the Marine Farming Branch stated that, while they still held some reservations about some of the content of the draft report, in the interests of progressing with the project they were prepared to approve it for public release. The *State of the D'Entrecasteaux Channel* report was then released, with the nutrient analysis intact, and the project moved on to the next stage.

Shortly after this, Environment Australia (15/9/1999) wrote a letter to the Steering Committee Chair, commending the "cooperative attitude of the Department of Primary Industries, Water and Environment's Marine Farming Branch to this planning process" and noting their reservations. Consistent with these reservations, the letter criticised the *State of the D'Entrecasteaux Channel* report for focusing disproportionately on marine farming issues and strongly intimated that the project should focus more on catchment pollution sources. This was a clear message to leave the salmon farming industry alone[105].

Progress with the Project

By this stage there was an atmosphere of distrust and frustration among some Steering Committee members. The heated controversy that had developed over the issue of nutrients was a cause of discomfort to some members and many did not see that the issue had any relevance to their interests. The project was behind schedule. Project timeframes and periodic payments were adjusted. There was some pressure on the project officer and Kingborough Council to avoid causing further discomfort to any of the committee members

[105] All the significant land based sources of nutrient discharge were already being quantified, monitored and addressed by Kingborough Council plant upgrades, planning schemes and other related projects including a *Catchment Management Plan for North West Bay River*, also funded by a grant from Environment Australia. Salmon farming was the only substantially polluting activity in which pollution discharges were not being addressed and in which they would certainly increase with the projected industry expansion that was being facilitated by the state government.

because their endorsement of the successful completion of each stage of the project was required by Environment Australia before release of periodic payments. Among other important expenses, these funds were used to pay the project officer's salary. For reasons described above and in the absence of any strong countervailing interest from other members of the Steering Committee to push for further investigation of the implications of the nutrient analysis to regional resource planning and management, the issue was not developed further during the remainder of the project.

Discussion

This outcome gives rise to a number of questions. If nutrient pollution was a significant threat to social, environmental and economic values associated with the D'Entrecasteaux waterway, and pollution from salmon farming a significant proportion of the nutrient discharge to the system, as suggested by the nutrient analysis in the report, why did Environment Australia and DPIWE, agencies with clearly defined responsibilities relating to protection of the marine environment from pollution from industries and other sources, appear to take the side of the salmon farming industry to prevent the issue from being further developed and publicly discussed? And why did the Steering Committee, which appeared to include representation from a broad range of community, industry and conservation interests, not ensure that this issue that appeared to be so crucial to the environmental objectives of both the project and the *Coast and Clean Seas* program was developed?

The objections of salmon farming interests are readily apparent, particularly in respect of the debate by Folke, Kautsky and Troell (1994; 1997) and Black *et al.* (1997) already discussed. If nutrient pollution is a problem, or a limiting factor in the waterway, and salmon farming discharges a significant source of it, then an argument could be made that there is an economic cost associated with salmon farming pollution.

Was Nutrient Pollution a Problem in the Waterway?

Nitrogen was recognised as a limiting factor on phytoplankton production in the region (DPIF 1997e). The regular occurrence of nuisance and toxic algal blooms was indicative of eutrophication. Nuisance algal blooms had significant implications for the region's salmon and shellfish growers, for recreational uses of the waterway and for conservation of the marine environment and its biodiversity. Studies noting the die-back of seagrass beds and other macrophytes in North West Bay and the Channel corresponding to increased amounts of epiphytic algae also suggested that excess nutrients might be contributing to eutrophication on a scale that posed a significant threat to the region's marine ecosystems

and biodiversity (Edgar 1979; Sanderson 1984; and Sanderson and Thomas 1987; Rees 1994). The importance of reducing nutrient loads into North West Bay had been recognised and it was a key objective of a catchment management plan for North West Bay River that had received Natural Heritage Trust funding from the federal government. Reducing nutrient loading was also an objective of a number of Kingborough Council projects to upgrade sewage management infrastructure and improve management of stormwater and other point sources. The state government was then, and continues now to push councils to upgrade all sewage treatment plants to tertiary treatment in order to remove nutrients entirely from environmental discharges from plants. Clearly, nutrient pollution was recognised as a problem. It was also identified by the Steering Committee in the initial meeting as a priority issue for the project.

Was Pollution from Salmon Farming a Significant Proportion of the Nutrient Discharge to the System?

There have been a number of studies into the environmental impacts of salmon farming on the environment, both overseas and in Tasmania. Woodward's (1989) report was a comprehensive assessment of environmental and regulatory issues. It considered overseas experiences and compared them with developments in the Tasmanian industry. Some discussion of the environmental impacts of finfish farms is also contained within the *Marine Farming Development Plan for the D'Entrecasteaux Channel* (DPIF 1997e: 19) which notes that:

> *Changes to the water column will result from the increases in soluble nutrients released from sediments, deposited faecal matter, uneaten food particles and excretory products from the fish. The changes in nutrient levels in waters can in turn cause changes in phytoplankton populations, not only in density but in species composition.*

The plan also notes (DPIF 1997e: 19) that in the marine waters of the lower Huon Estuary (which is contiguous with the D'Entrecasteaux Channel), phytoplankton production is nitrogen limited.

Woodward (1989: 3-4) noted that finfish farming in Tasmania

> *... represents a considerable source of external nutrients to the natural systems...the most important environmental effects associated with fin-fish farming are the increase in particulate organic matter entering the sediment system and the increase in nitrogen and phosphorus entering the water column.*

Comparisons have been made between the environmental effects of fish farms and those of sewage outlets. The wastes from salmon farms are chemically and biologically similar to sewage (Woodward 1989). A farm producing 400-500 tonnes of fish per year causes a nutrient-loading equivalent to the untreated sewage from 2800-10,000 persons (Bergheim and Selmer-Olsen 1978; and Woodward 1989).

Salmon farming was clearly recognised as a significant source of nutrient input to the D'Entrecasteaux Channel. Marine Farming Development Plans for the D'Entrecasteaux Channel (DPIF 1997e: 11) state that "there are no major sources of pollution in the catchment that could threaten the industry"; and that future growth of the marine farming industry in the D'Entrecasteaux Channel could be limited by "concerns related to the development of toxic algal blooms" (DPIF 1997e: 11); and that nutrients released to the water column from salmon farming "can increase the risk of toxic algal blooms" (DPIF 1997e: 17). The nutrient study for North West Bay might, then, have been seen as making an important contribution to regional resource management by providing information that allowed the relative importance of nutrients from salmon farming and from other sources to be compared.

A Hypothetical Study: Sewage Levy as a Pricing Mechanism for Polluter-Pays Charges

One could explore, hypothetically, the use of economic instruments to manage pollution in North West Bay. In 1999 Kingborough Council had in place a system of user-charges levied on residents. The annual rates included a component to cover the cost of treating household sewage; the "sewer rate". In the Channel region the sewer rate was about AU$ 340-400 per household annually. Funds raised were used by the council to cover the costs of treating sewage to an acceptable standard before effluent water was released into the environment. In 1999 in most of the D'Entrecasteaux Channel region, sewage was treated to secondary level. This neutralises pathogens and removes approximately half (more in well-performing plants) of the nutrient content of the untreated sewage. The cost of tertiary treatment (with full nutrient removal) is generally estimated to be approximately double the cost of secondary level treatment.

The sewer levy could be used as a benchmark to determine an equivalent price to charge for pollution from other sources. The household rate of AU$ 340–400, if we assume approximately 3-4 people per household, could, for simplicity, be reduced to an annual charge of AU$ 100 per person. If this levy is for secondary level treatment, and tertiary treatment would be about double, then AU$ 200 per person would be a reasonable

approximate price for the full cost of ameliorating the sewage pollution from an individual resident. While sewage is treated to secondary standard, community residents may be viewed as paying half the cost in cash, and, either receiving the other half as an environmental subsidy, or paying it through acceptance of the cost of some degradation to their local environment.

Polluter-pays charges could be levied on other polluters based on the amount of nutrients they discharge measured in population-equivalents as discussed by Folke, Kautsky and Troell (1994; 1997). These charges could be levied on poorly performing sewage treatment plants (which are already subject to fines if they fail to meet standards), on poorly managed agricultural lands and on other activities including salmon farms.

A salmon farm in North West Bay, for example, with a total production of 500 tonnes per year would produce pollution equivalent to the untreated sewage from a population of 3,000-10,000 persons. If charged at the full rate of AU$ 200 per population-equivalent this would amount to a pollution levy of AU$ 600,000–AU$ 2 million per year. Clearly the industry would rather avoid paying this levy and it might not be economically viable if this level of polluter pays levy was imposed.

In theory the use of economic instruments to equalise charges imposed on land and marine polluters could be a useful tool in integrated management and provide a means of resolving some resource conflicts arising over allocation issues, by replacing decision-making processes that are essentially political with processes based on market mechanisms. The project's contract included "guidelines for sustainable resource use", which echoed principles from the Rio Declaration noted by Folke, Kautsky and Troell (1997). These referred to the user-pays principle and suggested that prices charged for access to coastal resources should reflect all short-term and long-term economic, environmental and social costs associated with use of those resources, and that economic instruments should be applied equitably across all sectors of society (Phillips 2000: 22). Aversion to the use of such an approach can be understood as a determination by powerful interests to ensure that decision-making continued to be based on what is essentially political patronage rather than on polluter-pays market mechanisms.

Why the Salmon Farming Industry Objected to the Nutrient Analysis

The salmon farming industry has always argued that site specific information on production and feed input figures needs to be treated as "commercial in confidence", arguing that their

competitors might gain some advantage from access to this information. They have also been concerned that this information might be used by the general public to mount opposition to their industry on environmental grounds. Given the foregoing discussion, this provides an obvious explanation for their objections to the nutrient analysis in the *State of the D'Entrecasteaux Channel* report, particularly in the context of their plans, at the time of the study, to expand salmon production in the region. The general public, if aware of the above issues, might not only oppose the salmon industry's expansion in the region but object to paying increased rates to upgrade sewage treatment plants.

Why State Government Regulators Objected to the Nutrient Analysis

The Marine Farming Branch of DPIWE shared the goal of increasing salmon production. Its planning role was specifically to facilitate and manage this expansion, including the community consultation required by the planning process. Its objection to the nutrient analysis in the report would stem from the same basis as those of the salmon farming industry.

A more critical issue to understand is why agencies within the Department, and Environment Australia itself, agencies with a specific environmental protection mandate, preferred to ignore salmon farming discharges and only address land based sources of nutrients. In part this can be explained in terms of the power of salmon farming interests to influence political structures and through them the resource management bureaucracies. But there is more. Acknowledgment of the polluting effects of salmon farming highlighted major inconsistencies and contradictions in environmental management and pollution control regulation and policy in the region. These inconsistencies and contradictions raise questions about the integrity of the environmental management activities of a number of government agencies.

This is most evident in the case of DPIWE, where one branch of the department regulates local government activities toward total nutrient removal from all discharges, claiming this is necessary to protect the environment, while at the same time the Marine Farming Branch (within the same department) is promoting the expansion of salmon farming, which is, inevitably, associated with an increase in nutrient discharge. This policy contradiction undermines the integrity of the environmental protection functions of the Department. It is understandable that people concerned about these functions would not wish them to be undermined by studies and information that raise challenges to their credibility. Therefore, they too have an interest in downplaying public discussion of the issue of nutrients

discharged from salmon farms into waterways in which other sources of discharge are strictly regulated.

If, instead of salmon, only shellfish farming, which produces little nutrient pollution, occurred in the waterway, then the project might have made more orderly and conflict-free progress. Catchment sources of pollution could have been identified and prioritised and the project outcomes could have supported abatement programs for catchment pollution sources without confronting serious contradictions. The project outcomes could have provided justification for the established and traditional roles of local, state and federal government in these pollution abatement programs. Upgrading sewage treatment plants and addressing diffuse pollution sources with environmental controls in planning schemes and through catchment management plans are part of the core business of local governments. They are regulated in these activities by state government agencies, which set policies and standards and sometimes fine local governments for failure to comply with them. Federal government policies also play a part, and, through programs such as *Coast and Clean Seas,* the federal government has provided grants to fund various abatement projects, including sewage treatment plant upgrades and catchment management projects. Justification for these programs, which entail considerable expenditure of public resources, rests on the environmental benefits they yield for the community. The integrity of these programs comes into question if the potential benefits to the environment are not realised because a reduction in the pollution discharged from these sources is countered by increased quantities discharged by others.

It might also be perceived in a situation in which the capacity of the waterway to absorb pollution discharge is limited, a situation that evidently applies in the case of North West Bay, that reducing the quantity of pollution discharged from one source allows increased discharge from another. Reducing discharges from sewage treatment plants and catchment run-off, for example, may only compensate for increased discharge from salmon farming and so be regarded as a factor enabling industry expansion. Regulation in this case can be seen as resource allocation. It determines who may discharge and who may not and who must pay and who gets a free ride. Resource allocation of this nature is generally recognised as an essentially political process.

In the case of North West Bay the politics of public and private interest arises. Abatement of nutrient discharge from sewage treatment plants and other land sources comes largely at public expense through rates-based levies on local residents, and federal grants funded by taxpayers and the Australian community at large. These communities do not enjoy the

environmental improvements they have paid for, and might feel entitled to, if nutrients discharged from salmon farming, a private interest, counter the benefits of the abatement programs. This can be seen as an example of environmental regulation privatising the benefits and socialising the costs.

Private and Public Interests and Sustainability Dysfunction

Saul (1997: 3) explores the social dysfunction in modern societies, linked to corporatism and the undermining of the roles of citizenship and democracy, that "leads to our adoration of self-interest and our denial of the public good." He identifies (1997: 99) the problem of "interest representation" associated with "stakeholder" decision-making systems where the process is not really about policy, but a fight over who gets what, and where there is no room "for thought or disinterested participation", disinterest being required to serve the public good. Environmental sustainability is essentially an issue of public good, and it requires "disinterested" decision-making and functional democratic processes to advance this public good in the face of competing vested interests. This basic understanding expressed by Saul (1997: 159-195) is also common to the views of many philosophers including Olson (1965; 1982) and Putnam (1993) who have examined the requirements for furthering the common good in society. Examination of the decision-making process in the D'Entrecasteaux Channel project shows how, even in a process with apparent concessions to community representation, the political process produces outcomes that are dysfunctional in terms of the primary environmental mandate of the project and the committee. This failure was demonstrably due to the overwhelming strength of vested interests in the process and their co-option of government agencies and the individuals who serve them. It is reflective of a resource management culture oriented to the service of private rather than public interests. This is not to say that the outcome will be environmental unsustainability, but the process did not contribute to avoidance of unsustainable outcomes, although this was the stated objective. This case study also shows how, in Tasmania, power is brought to bear to suppress access to information upon which democratic processes might work towards a view of the broader public interest associated with environmental sustainability. It also provides insight into the functioning of Tasmania's resource management institutions and illustrates the way in which power is exercised to ensure the subservience of environmental protection branches of DPIWE to industry development interests. It therefore provides an example in support of the argument that Tasmania has a resource management culture that is not conducive to sustainability.

Discussion: Private and Public Interest and Sustainability

Earlier in the chapter I argued that resource management policies that promote divisiveness and social inequality and which fragment society into competing groups serve to undermine the characteristics in Tasmanian society, and its social structures and political institutions, upon which the protection of its marine environment from potential sources of pollution depends. One aspect of this is that they undermine the ability of society to advance issues of common, or public good, over private interests. The D'Entrecasteaux Channel project provides insight into the political wrangling within a Tasmanian resource management situation that involves stakeholders from the community, industry, and local, state, and federal government environmental management agencies. It demonstrates how the social and political dynamics generate outcomes that fail to address the most pressing pollution threat to the local marine environment, although addressing such threats was a principal, stated objective of the project. This failure highlights contradictions in the treatment of pollution discharges from different sources, contradictions sufficient to bring into question the integrity of the whole approach to pollution abatement in the region. The environmental management system involving the state, federal and local government agencies that were involved in the project could be described as dysfunctional in so far as it did not effectively address a significant threat to the environmental sustainability of the waterway. It did not do so because in Tasmania's resource management culture, development interests linked to increasing environmental threats and pressures prevail over broader community concerns associated with environmental sustainability. The way in which powerful industry interests were able to pressure resource decision-making processes into dysfunction with regard to their mandate to promote environmental sustainability can be likened to similar influences that contributed to the failure of management of Newfoundland's cod resource as described by Finlayson (1994) and discussed in the previous chapter.

There is a link between management policies in the Tasmanian lobster fishery that promote inequality and social division, and the failure of pollution abatement policies to protect the marine environment upon which the productivity of these fisheries depends. It may not be a direct causative link but rather one that is transferred through complex and subtle aspects of Tasmanian society and its culture of resource and environmental management and how this is influenced by and serves private or public interests.

4.5 Conclusion

The aim of chapter 4 was to examine marine resource management in Tasmania in a way that enabled comparison with the Newfoundland case study developed in chapter 3. An argument developed in chapter 3 linked resource collapse through management failure to persistent, dysfunctional structural and cultural characteristics in Newfoundland society that are a legacy of historically entrenched social dualism. Historically rooted social dualism is also a noted feature of Tasmanian society. Its origins may differ in some respects to those pertaining to Newfoundland, nevertheless there are many similarities. Chapter 4 began with an overview of Tasmania's settlement history and described the establishment of a society with structures and institutions specifically designed to perpetuate a stratified social order with an entrenched inequality and clear separation between classes. The way that a self-reinforcing social, political and resource management culture operated in Tasmania to ensure the persistence of social dualism from convict times and into the twentieth century was explained with some examples. These demonstrate a tendency towards patronage, corruption and service to monopoly and rent-seeking, vested interests. This tendency was also noted in relation to criticism of current practices in Tasmanian forestry, which is, economically, the most important natural resource harvesting industry in the state. The chapter then examined regulation of the Tasmanian rock lobster fishery, and the implementation of a quota based management system in 1998. This case study explored many of the issues introduced in chapter 2 and discussed in relation to the Newfoundland fishery in chapter 3. It concluded that regulation of the fishery had promoted privilege and exclusion and exacerbated wealth inequality and social division. It had, therefore, fostered within Tasmanian society similar characteristics to those associated with community and resource management dysfunction in Newfoundland. Could a connection be shown between these characteristics and sustainability dysfunction in Tasmania? The analysis considered this in relation to the rock lobster fishery, but concluded that in the prevailing circumstances, these conditions would not necessarily lead to resource failure through overfishing as happened in the Newfoundland case. Instead it suggested that these characteristics were linked to dysfunctional tendencies in the systems and institutions responsible for managing pollution in Tasmania's coastal waters, which could (at least at a theoretical level) pose an indirect threat to the fishery. Thus, the conclusions from the Tasmanian case study provide, at a general level, support for those developed from the Newfoundland case. In the next chapter the issues of entrenched social dualism, private property rights in fisheries management, and broader questions of social, political and environmental sustainability will be explored further in relation to a fishery case study from Pakistan, in which fishery collapse is linked directly to catchment pollution.

Chapter 5

Pakistan:
Feudalism and Private Property -
Inequality, Unsustainability and the Rise of Fundamentalism

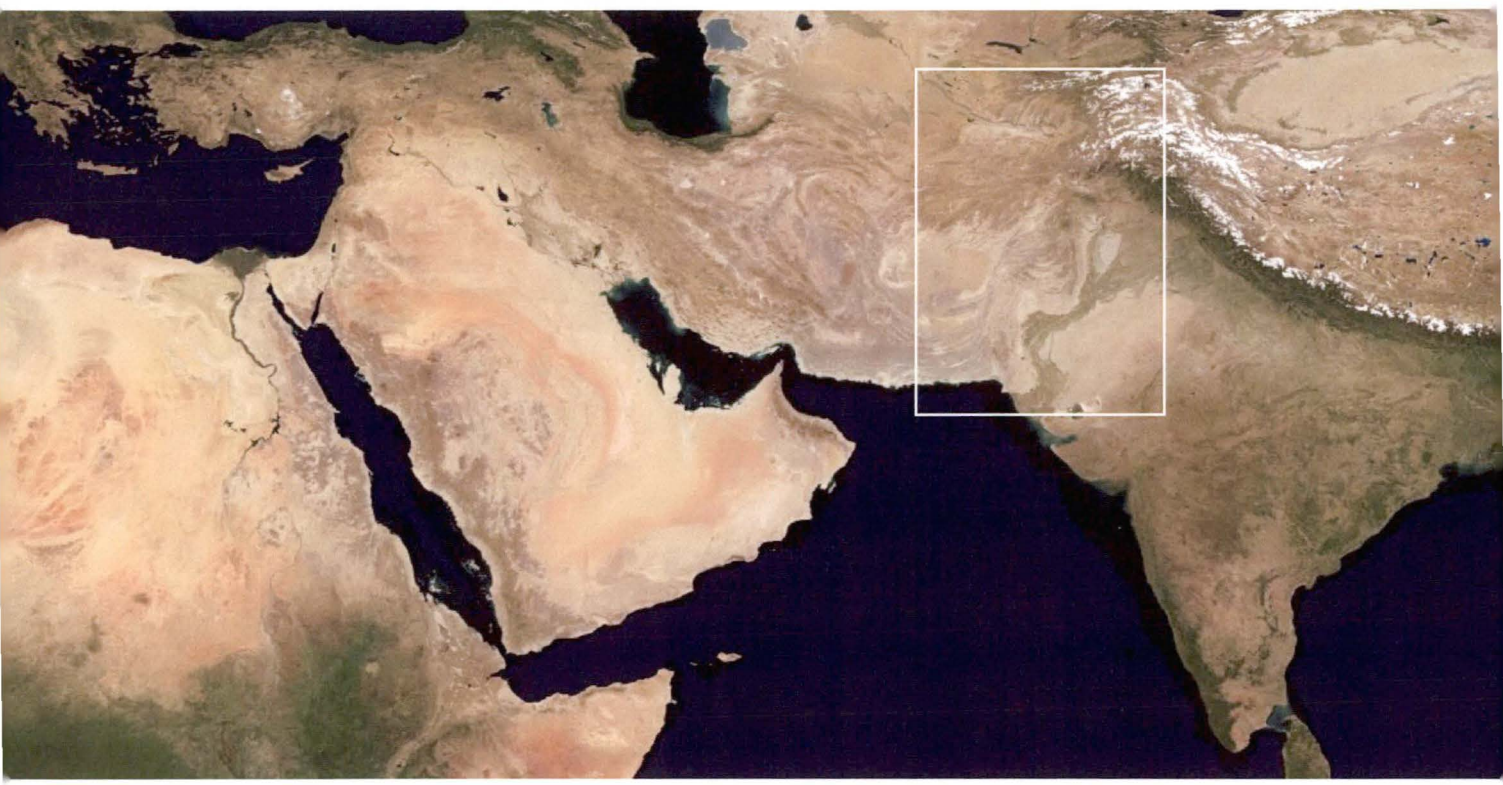

Figure 5.1 Map of Pakistan showing its location on the Arabian Sea and bordering Iran, Afghanistan, China and India.

Image source: NASA 2006

Map Source: CIA 2006

5. Pakistan: Feudalism and Private Property: Inequality, Unsustainability and the Rise of Fundamentalism

Figure 5.2 Pakistani fishermen on Rawal Lake

5.1 Introduction

In the previous two chapters, it was argued that historically entrenched social dualism played a part in shaping both the cultures and resource management practices of Newfoundland and Tasmania and that this contributed to dysfunctional outcomes in terms of resource and environmental sustainability. A key theme examined in these studies was the way that fisheries management systems, for example, those based on limited entry and private property mechanisms, could serve to perpetuate political and economic structures that sustain social inequality. This was also linked to tendencies towards a proliferation of rent-seeking activities and a corresponding tendency towards service to vested interests in the political and resource management cultures of these societies. This tendency undermines the ability to advance common interest values associated with both environmental sustainability and broader goals of social and economic development. These themes will be examined further in this chapter in relation to fisheries management in Pakistan.

Entrenched social dualism and institutional dysfunction, more than mere features, are, arguably, defining characteristics of Pakistani society. Thus, Pakistan stands out as a particularly apt location to study relationships between social dualism, associated political

and distributional aspects of resource management, and the consequences of this in terms of environmental, economic and socio-political sustainability.

Chapter 5 has three sections. The first provides contextual background, describing Pakistan's social, political and resource management environment. The second is a case study of a freshwater fishery in Pakistan in which management arrangements are discussed in relation to this context. The third section is a discussion of fundamentalism (in various forms). Fundamentalism is portrayed as an extreme expression of community breakdown or social unsustainability, and an argument is presented which links the rise of fundamentalist irrationality and related undesirable social effects, including terrorism, to the sort of socially, economically and environmentally dysfunctional resource management practices that have been discussed in this and previous chapters. Inequality is an issue of particular focus.

5.1.1 Background

Pakistan, like Newfoundland and Tasmania, has a history of British colonial occupation. Pakistan's political and legal institutions, like those of Canada and Australia, were shaped by this shared colonial experience. Like Canada and Australia, Pakistan has a federal system of government. There are four provinces, Sind, Baluchistan, Punjab and the North West Frontier Province, and each has a provincial government with some legal and administrative powers, but important functions, and especially military power, are concentrated in the hands of the federal government. The social elites of Pakistan, like those of Tasmania and Newfoundland, educate their children in private schools. These schools were developed on the model of elite British "public" schools. They were established in colonial times and proudly maintain their traditions. Education levels for the country as a whole, however, are low. Pakistan has one of the lowest literacy rates in the world[106]. Beyond some notable similarities, Pakistan appears in many respects to be quite different to Tasmania and Newfoundland. While they are peripheral regions of wealthy, Western, developed countries, Pakistan is among the "developing nations" of the world; a term that generally refers to countries on the margins of the global economy, afflicted by poverty and the many social and environmental problems that tend to go with it.

Pakistan is described as an impoverished and dysfunctional state, with an entrenched and corrupt elite who control the economy (Rashid 1996; Behar 2002). Government management of the economy is, however, hampered by the existence of an extensive,

[106] Mernissi (1992: 80), as will be discussed later, identifies unequal education in the Muslim world as a contributing factor to intense social division that is linked to the rise of fundamentalism.

underground economy known as *hundi,* with networks of international traders and moneychangers who transfer funds across national borders to pay for billions of dollars worth of smuggled imports (Behar 2002). There is conflict between ethnic groups (Rose and Evans 1997; Mustafa 2005), and secessionist movements create further instability (Rashid 1996). Islamic fundamentalism and terrorism find considerable support (Rashid 1996; Behar 2002), and there is a chronically weak political culture, dominated by the army, which is widely regarded as the only institution with the strength to manage Pakistan's state of perpetual crisis, to limit corruption, and to maintain stability (Beaumont 1997; Ahmedullah 2000; Weidemann 2000; Malik 2001; T. Ali 2003: 272-278).

In this chapter I present a case study of a fishery at Rawal Lake, near Islamabad, within the context of these challenging characteristics of Pakistani society. In addition to localised concerns over resource and environmental sustainability, the analysis considers some broader issues of social and political unsustainability that have the potential to spill across national boundaries to have a broader global impact. At the beginning of the twenty-first century the region has become one of the focal points in what may be developing into a broader global struggle between religious fundamentalism on the one hand, and the traditions of humanism and modernity on the other. This struggle, which underlies "the war on terror" and the widely held perception of conflict between the Islamic world and the West (a simplification that obscures more critical underlying issues and developments) has since the intensification associated with September 11, 2001, become a predominant concern in global politics[107]. A crisis of worldwide proportions has developed and is deepening, one to which, at present, there appears to be no end or solution. In addition to shaping international relations this crisis is affecting the internal politics of many countries, impacting on civil liberties, and affecting the "attitudes" of people and governments. Insecurity and uncertainty are being exploited by some governments and other institutions to justify a move away from the secular, liberal, humanist traditions that form the cornerstones of democratic societies in the modern Western world, in a direction that, if carried to extreme, leads ultimately to some form of totalitarianism. The preoccupation with warfare and security issues, which tend to have a high priority and short horizon, can also be expected to push "softer" issues, such as environmental sustainability, into the background. This has further long term implications for the wellbeing of people and the likelihood that underlying issues of resource scarcity and competition will continue to create tensions and intensify conflicts. In human societies there is a disequilibriating tendency towards increasing conflict when resources become scarce.

[107] T. Ali (2003: 311-328) downplays the significance of the events of 11 September 2001 (and the importance of militant, Islamic fundamentalism). The underlying issue of global political importance, he argues, is American imperialism advanced, since the decline of an alternative political economics, by neoliberalism, which he regards as a fundamentalist doctrine.

This undermines the prospects for the sort of cooperative action that is required to conserve and husband those resources that remain in the interests of providing for resource and environmental sustainability.

Social dysfunction is an important factor in the rise of the irrationality and intolerance embodied in various forms of fundamentalism and this will be discussed in some depth. Within an holistic approach to political economy one can readily link the underlying social and political dysfunction associated with the rise of fundamentalism and violence to the way that resources are used, produced and distributed within the global society (as discussed in chapter 2). Thus, to the extent that social dualism, perpetuated through the influence of political and social structures on patterns of resource use, can be identified as a cause of social, political, economic and environmental dysfunction, as has been demonstrated in the Newfoundland and Tasmanian case studies, and will be argued here in the case of Pakistan, it can also be recognised as a factor in the rise of fundamentalism. The link between global security concerns and tensions stemming from localised political and resource issues has growing relevance to an increasingly integrated, "globalised" human society. This relates to fisheries management debates over policies favouring "social" versus "economic" objectives. It also brings renewed salience to studies into institutional function that identify why it is so difficult to advance common versus private interests in the politics of resource management and human behaviour and why it is so hard to resist the apparent entropy towards unsustainability.

5.1.2. Research Approach

The case study of the fishery at Rawal Lake near Islamabad was researched during a visit to Pakistan during April and May 2001. Background information was also developed during this period while travelling in the north of Pakistan, in the Punjab and the North West Frontier Province. During this trip I travelled several thousand kilometres by car and visited agricultural lands and several small industries. I conversed with resource management academics, feudal landowners, people connected with the military establishment, politicians, lawyers, beneficiaries of land reform from the period of Zulfikar Ali Bhutto's government and officers from the Pakistan Environmental Protection Agency. In developing the case study of the Rawal Lake fishery, I made several visits to Rawal Lake, which is close to Islamabad, and talked with the fishers and other people there, and accompanied the fishers in their fishing activities on the lake.

The political situation in Pakistan following the events of September 11, 2001 made a follow up field trip in 2002 inadvisable. It would have been helpful to survey the Rawal Lake fishery and similar reservoirs in the region more extensively to provide greater authority for some of the observations made on the initial trip. While this proved impossible, an overview of management arrangements was developed from the information obtained during the initial trip and served the purposes of this analysis.

5.1.3 Theoretical Context

In keeping with the approach taken in the chapters dealing with Newfoundland and Tasmania, I have examined the fishery management case study in Pakistan within the context of the social and political environment in which it occurs. A central argument of the thesis is that the way fisheries and other resources are managed by any society both reflects and reinforces the structural and cultural characteristics of that society. Control over access to resources, often the central if unstated issue in resource management, is arranged in ways that support and maintain prevailing structures of power, wealth and status. I have found relevance in Olson's (1982) general arguments, that over time in any society rent-seeking groups[108] tend to become more and more entrenched and prosperity is undermined as redistributive activities come to predominate and productive activities suffer increasingly from the predation of rent-seeking, redistributive coalitions. Olson (1982) suggests that this progression, if not disturbed by some significant disruption to the social, political and economic order, inevitably leads to the development of a society dominated by contesting groups preoccupied with property rights and the maintenance of privileges attached to social status. This inevitably takes society down a path to poverty and poor economic productivity, entrenched inequality, and civic and institutional dysfunction. This progression also undermines the qualities that a community requires if it is to achieve social, economic and environmental sustainability. In examining fisheries and related resource management case studies in Newfoundland and Tasmania I have examined how resource management practices foster inequality and serve rent-seeking interests, and I have considered the consequences of this in terms of societal dysfunction and the implications for environmental sustainability. Here, in relation to Pakistan, the argument is extended. Examining the interconnectedness of communal and environmental dysfunction and the view that these are

[108] Referred to by Olson (1982: 153-175) as redistributive coalitions, which include a wide range of, typically, exclusive minority groups such as aristocratic classes, guilds, unions, castes, and certain professions that secure rent through regulating exclusive or monopolistic control over certain aspects of economic activity. Olson supported his theories with a number of case studies and discussed and compared the European aristocracy, the *apartheid* system in South Africa and the *caste* system of the Indian subcontinent at some length.

mutually reinforcing, I show that the rise of fundamentalism in Pakistan is linked to environmental failure, which is, in turn, linked to resource management practices that are shaped by Pakistan's social and political culture to serve rent-seeking interests and sustain an intensely unequal, feudal society.

The discussion of fundamentalism has relevance in the West where fears associated with Islamic extremism, and dangers associated with the rise of Western forms of fundamentalism, have become pressing concerns. The suggested link between inequality and the rise of fundamentalism is also relevant in the West where a widening gulf of inequality is associated with the dominance of neoliberal economic policies over the past quarter century, and there is a sense expressed, for example by Sim (2004), that Western life is becoming increasingly influenced by various forms of fundamentalism.

Holistic, philosophical examinations of the nature of societies and the factors that combine to make them thrive and prosper, or fall into decline, rest upon a long and rich tradition. The classics of social, political and economic philosophy which include, among many others, such works as Plato's *Republic,* Thomas More's *Utopia,* Adam Smith's *The Wealth of Nations,* Gibbon's *History of the Decline and Fall of the Roman Empire* and the writings of Karl Marx have all contributed to the foundations of this extensive tradition. More recent contributions have emphasised the influence of entrenched social and political cultures on patterns of resource use, equality, prosperity, civic governance and democratic functionality, and community and environmental sustainability (for example, Olson [1982]; Putnam [1993]). Often these studies have promoted certain factors that their authors believe provide the keys to civic wellbeing. Bernstein (2004), for example, identifies four factors - property rights, scientific rationality, capital markets and efficient communications and transport - as essential to the development of modern, prosperous societies. But the complexity of human societies means that an absolute understanding of what makes them work is elusive, thus there are many contradictions and few certainties, and this provides the opportunity for ongoing debate; liberal, democratic and egalitarian societies in which individuality and creativity can thrive are rare, fragile and transient things. Yet, the sum of all this philosophical exploration forms a coalescence of a sort, a foundation of embedded, cultural knowledge, which the free thinking associated with the humanistic traditions of the Enlightenment may explore, challenge, select and build upon, and this unstructured approach is followed here.

5.2 Pakistan's Geography, History, and Social and Political Characteristics

The Indus River is the lifeblood of Pakistan and the Indus River Valley is the central geographic feature of the country. Its soils are fertile and snowmelt from the Himalayas provides abundant water for irrigation. Pakistan has the largest integrated irrigation network in the world, with the Indus River system and its tributaries supplying over 30 million acres of cultivated land (LEAD 1998). The Indus River Valley is the site of one of the world's earliest civilisations based on settled agriculture and irrigation. It thrived between 2500 and 1500 B.C., and was more extensive and advanced than the civilisations of Egypt and Mesopotamia that slightly preceded it. Today, Pakistan is generally regarded as a poor country in need of development.

Pakistan has an extremely unequal society. A wealthy elite is separated from the vast majority by an enormous disparity of wealth and opportunity. Feudal patterns of land ownership and agriculture persist, especially in Baluchistan and the North West Frontier Province. Land ownership and associated wealth and power are concentrated in the hands of a relatively small number of feudal families. Despite attempts at land reform under the governments of Zulfikar Ali Bhutto and Field Marshall M. Ayub Khan, the feudal class has been able to successfully protect its interests (LEAD 1998; Encarta 2004).

Pakistan emerged as an independent state in 1947 with the partition of India at the end of British colonial rule. The division of British colonial India into present day India, Pakistan and Bangladesh, was largely along religious lines; with Pakistan and Bangladesh predominantly Muslim while India was predominantly Hindu. The partition involved a great deal of sectarian violence and the forced relocation of millions of people, leaving a bitter legacy of suspicion and hostility between India and Pakistan that persists to this day and has shaped the relationship of the two countries.

Profound inequality, the result of a long history of entrenchment of what Olson identifies as redistributive coalitions, has been an established feature of life in Pakistan and India. This is most evident in the *caste* system, which so strongly defines the social and political culture of society in the Indian sub-continent. Linked to occupation and race, it has been preserved by prohibitions on intermarriage, and by Hindu religious doctrine, notably by the concept of *dharma*, which defines morality in terms of the rules of a person's station or caste rather than in a more universal way (Olson 1982: 157). In predominantly Muslim Pakistan, the *caste* system is not maintained by religious doctrine - in fact it contradicts the egalitarian teachings

of Islam - but many of the prejudices that inhibit social mobility and economic opportunity within the *caste* system are deeply integrated into the values of Pakistani society and are maintained by the politics of resource and wealth distribution. In addition, social and political life in Pakistan is influenced by the cultural legacy of a long history that features a recurrence of invasion and colonisation. Alexander the Great, the Moghuls and the British, and others before them, all conquered and ruled the Indus River Valley and other parts of the Indian subcontinent. The legacy of a history of conquest and occupation, that was linked to circumstances of geography and resources, can be found in the region's ethnic diversity, and in the continued preoccupation with control over land, water and other resources in political life, and in the importance given to rank, status, family and other connections in all spheres of Pakistani life. It may also be a factor that contributes to maintaining the pre-eminent position of the military in Pakistani society and politics.

Olson (1982: 153-161) considers the issues of political and social disruption brought about by conquest and other upheavals in the region's history. Why did the Mogul empire and British rule not undermine the rigid social systems that appear, instead, to have been reinforced? Olson argues that following conquest, the pre-existing social order was sustained and incorporated because it served as a useful, supportive structure to the "indirect rule" exercised by both the Moguls and the British. The established social and economic systems were allowed to continue. The rulers did not attempt to extend administration to a local level. Hindu princes continued to rule autonomous states within the Mogul Empire. Religious institutions were not disrupted: missionaries, for example, were kept out of British India until 1813 (Olson 1982: 153).

Social and economic systems that were developed and refined over a long period under the influence of rent-seeking coalitions, while not economically efficient in terms of maximising prosperity and well being for the majority of their populations, were quite efficient in terms of producing an extractable economic surplus that could be captured by a ruling class. New rulers left these systems in place and took a share of this surplus through taxes and tributes. At local and village levels, life continued without great change or instability (Olson 1982: 154). New rulers shared with existing distributive coalitions (especially those that were dominant and had most power in the existing social structures) an interest in maintaining the rent-producing systems and the existing order within which they operated. Pakistan's social, political and economic characteristics today are very much a legacy of this history, shaped by the entrenchment of a highly stratified, rent-seeking society.

5.2.1 Political Culture

Corruption is pervasive in political life in Pakistan (Rashid 1996; Behar 2002). Most of the civil governments that have come to power since 1947 have been tarnished by corruption scandals and this has often provided the military with an excuse to replace them ("An Orgy of Reprisal in Pakistan", *The Economist,* 27/11/99: 27-28). Mohammed Nawaz Sharif, for example, Prime Minister of Pakistan until he was removed from power by a military coup in October 1998, is reputed to have transferred millions of dollars worth of public assets to his own use. However, it was only when he tried to interfere in the internal power structure of the army that it moved against him (PAIS International 1999; Weidemann 2000; T. Ali 2003: 253-255). Politics is a dangerous game in Pakistan. Wealth and power are the reward for success, but imprisonment, assassination and even execution are commonly the price of failure. While in government, Nawaz Sharif had claimed to attack corruption, but "his crusade against corruption turned out to be a vendetta against his political opponents" (*The Economist,* 27/11/99: 27). He had also embarked on "a war on terrorism" (years before such rhetoric was popularised in the USA and other countries following the September 11, 2001 attacks), but his anti-terrorist courts were criticised; they did not provide "guarantee of due process" or that "the rights of the accused are taken into consideration" (*The Economist,* 27/11/99: 28). They were kangaroo courts that could be used against political opponents.

The political culture in Pakistan is not characterised by civic commitment. Many public institutions are dysfunctional and civic society is poorly developed (Rose and Evans 1997; Malik 2001)[109]. Environmental protection, for example, while supported by legislation comparable with that of other countries, is poorly implemented (Gul Khattak 2000: 1, 58). In this environment of institutional dysfunction, personal, family and tribal relationships, not surprisingly, assume greater importance[110]. Patronage and clientalism are systemic and entrenched. This tendency is exacerbated by the pronounced social and economic inequality in Pakistan; the concentration of power in few hands, and the fierce competition for limited resources and opportunities by the numerous poor that creates a situation where the ability to extend patronage becomes a source of considerable power.

Social and political dysfunction may also be linked to a preoccupation, in Pakistani society, with property rights relating to control over tangible resources. Land grants are commonly

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[109] Mustafa (2005) points out that in contrast to this general statement, there are also, in Pakistan, some widely admired non-government service-delivery and advocacy groups.

110 Perhaps due to the importance of personal relationships, Pakistanis are friendly and hospitable people. This is especially so among the Pathan people of the North West Frontier Province, with whom codes of honour require that hospitality be extended to strangers.

the reward for service in government and the military. Land and water are of great importance in a society where widespread poverty and a large and continually growing population give pressing relevance to Malthusian concepts[111]. Disputes over land and water are central to legal and political life at every level of Pakistani society. Control over the sources of water that feed the Indus is an issue of concern and potential conflict between Pakistan and neighbouring countries (Postal 2001), and in times of drought there are often disputes over water between Pakistan's provinces. There are obvious conflicts between the interests of entrenched feudal landowners and the large population of landless poor. Land reform is an ongoing issue of political conflict, and private property rights are often insecure in an environment pervasive with socio-political tensions.

5.2.2 Land Reform Movements

Pakistan is an agricultural country and almost half of the workforce is involved in farming. As noted, a feudal pattern of agriculture persists. Since independence in 1947 there have been a number of programs to introduce land reforms. Some, such as the reforms attempted by the government of Zulfikar Ali Bhutto in the 1970s, created some legal uncertainty and conflict over tenure, but they did not break the power of the landlords. "By the end of the twentieth century, about half of the country's arable land was held by only a small percentage of wealthy landowners" (Encarta 2004: 3) and land reform remains a controversial issue.

Feudal agricultural practices in parts of Pakistan appear to have changed little from those that would have been familiar in the Indus Valley Civilisation of 4500 years ago. Much labour is performed by hand and it is quite striking, in the twenty-first century, to see men squatting in fields of wheat, which they are harvesting with hand-held sickles (Figure 5.3). The low cost of agricultural labour[112] makes manual labour economically viable when compared to the cost of machinery and fossil fuels. Also, a move towards greater industrialisation of agriculture has significant social implications. Increased mechanisation implicitly threatens to displace much of the large rural workforce into an already large and growing population with limited resource options and high unemployment. Population pressure exacerbates unemployment and poverty, which already pose a threat to the social and political stability of the country as a whole. Landowners face a dilemma. Tenant

[111] The population is approximately 154 million and is increasing at 2 per cent each year (Encarta 2004).
[112] Agricultural workers in Pakistan earn less than the equivalent of one US dollar per day.

farmers, whether they remain on the land or are displaced by mechanised farming, pose a persistent threat. They are a constant source of pressure for land reform.

Figure 5.3 Harvesting wheat with hand-held sickles near Kund, North West Frontier Province, Pakistan, April 2001

The three common forms of land tenure arrangement between landlords and farmers in Pakistan are: simple cash-rental; sharecropping or *battai*, which is most common, where tenant farmers work the land and pay a portion of the crop to the landlord (on irrigated land the landlord receives up to half the crop); and the "corporate" approach, where the landlord employs a mix of people and machinery to work his land for him. (This system, which is similar to industrialised, corporate agricultural systems in the West, gives greater security and control to the landlord but requires professional management and oversight. It also requires fewer workers than traditional forms of agriculture.)

In recent years there has been increasing tension between tenant farmers and landowners who have generally been backed by the Pakistan military authorities when conflicts have erupted[113]. Fayle (2003) reports on a land dispute in the Punjab that had been the cause of ongoing conflict for three years, and T. Ali (2003: 266-269) discusses the same dispute in some detail. This dispute directly involved a million tenant farmers and their families. The tenant farmers challenged the legitimacy of landownership and refused to pay rent, either in the form of harvest-share or cash-rent. At the heart of the dispute was the fear among farmers that, with the move towards the introduction of "corporate farming", they and their families would be evicted from land that they had worked for generations. The landlord

[113] The Pakistan military is itself a landlord, owning vast areas of agricultural land.

involved in this dispute is the Pakistan army, which acts as a "collective landlord" over these crown lands (T. Ali 2003: 266). T. Ali (2003: 266) confirms that the dispute was generated by the armies' moves to "loosen the grip of the tenants over the land and the produce" by replacing crop share arrangements with cash-rent and short-term contracts. "The aim of the 'modernisation' ... is deregulation, privatisation and the destruction of tenant solidarity", according to T. Ali (2003: 266), with the objective of transferring these tenanted crown lands to private property in the hands of senior army officers. The farmers were supported by their own organisation, the Punjab Tenants' Association, and by some NGOs. The army had attempted to suppress outbreaks of resistance and several people had been shot and killed, hundreds had been injured, and new 'anti-terrorist' laws had been used against the social movement's leaders (T. Ali 2003: 269). Both the military and the farmers recognised the significance of this dispute, which if successful, could ignite similar resistance across Pakistan (Fayle 2003). This, clearly, would pose a serious challenge to the feudal order that remains such a powerful force in Pakistani society.

In March 2002, a Pakistani colleague provided me with a personal account of another land dispute that occurred on a large feudal holding near Mardan in North West Frontier Province (I had visited this place the previous year as the guest of the landowner). The origins of this dispute could be traced back several generations to British colonial times. At the beginning of the twentieth century the agreed annual rent amounted to about one eighth of the value of the harvest. The productivity of the land and the predictability of the harvest had been significantly improved in 1912, when an irrigation tunnel and canal were built (by the British) to bring water from the Swat River Valley to this area (Figure 5.4). Consequently, over time, most of the tenancy contracts had been converted from the original rental arrangements to a 50:50 crop share, reflecting the increased productivity of the land under irrigation. But one plot of 40-50 acres had still been farmed under the original terms, and the landlord still received a rent of only about one eighth of the value of the harvest. The contract had been renegotiated by the landlord and the elderly tenant (who had held this plot for 70 years), but following his death, his sons had rejected the new arrangement. They, with the aid of tribal supporters, occupied the land and denied the landlord access. The landlord took the case to court and won several judgements at different levels including in the Supreme Court, but the tenants refused to yield. This dispute led to a standoff between groups of several hundred armed men – dependants and tribal supporters of the tenant on the one side, and supporters and relatives of the landlord on the other. The situation was quite volatile for several weeks. There was a genuine fear that it would deteriorate into overt warfare between the contesting groups, but this did not eventuate. There was some violence, including attempts by women from the tenants' camp to burn tractors belonging to the

landlord that were working land nearby[114]. The police became involved and arrested some of the tenants' supporters, and eventually the situation was calmed and stability restored, but tensions continue to simmer.

Figure 5.4 Irrigated farmlands Swat River Valley, North West Frontier Province, Pakistan May 2001

These examples illustrate the intensity of underlying tensions over land, which also extends to other resources in Pakistan. This tension is exacerbated by poverty and inequality, and creates a situation of uncertainty over property rights leading to the need for expensive policing and the willingness to resort to force in order to assert ownership. The perceived threat to agricultural workers posed by the modernisation-industrialisation of agriculture associated with the trend to corporate farming is intensifying longstanding tensions over land. As noted, increased mechanisation would displace many millions of traditional farm workers who would have no immediate prospects for alternative employment. Where would they go? What would become of them?

5.2.3 Religious Fundamentalism

There is a constant tension between Islamic and secular traditions within Pakistani society and its institutions, including the military. Pakistan was officially established as an Islamic state and, indeed, the very name Pakistan (land of the pure) affirms the central status of

[114] There were cultural complications associated with this attack by the women. The tractor drivers could not defend themselves, nor could the police do much to assist them, touching a woman being a grievous offence among tribal Pathans, and they could only try to get away and to save themselves and the tractors.

Islam in defining its identity. While the unifying effect of the Islamic religion does not generally supersede the power of tribal relationships in Pakistani society (Encarta 2004) it provides a common value system that is shared, to a greater or lesser degree, by the majority of the population regardless of social status or occupation.

The growth of Islamic fundamentalism in the region has been a feature of the past few decades and is widely regarded as a serious threat to stability (Rashid 1996, Behar 2002), and, as noted, it increasingly relates to broader global concerns. In the 1980s, the growth of Islamic fundamentalism was nurtured and supported by the United States and its allies, Pakistan and Saudi Arabia, as it provided a useful ideological bulwark against socialism/communism and it was encouraged as a source of inspiration for the *mujahadin*, the Afghan guerrilla fighters engaged in *jihad* or holy war against the Soviet occupation of Afghanistan (T. Ali 2003: 195-202). The *mujahadin* were supplied and supported from bases in Pakistan.

Following the Soviet withdrawal from Afghanistan, interfactional conflict continued and over a million displaced Afghan refugees have remained in the border areas of Pakistan. With the defeat of the Soviet occupation, the Taliban, backed by the Pakistan army, emerged as the dominant political force in Afghanistan and gained control of the Afghan capital, Kabul (see T. Ali [2003: 195-202]). The Taliban regime imposed an oppressive rule by clerical authority guided by the doctrines of fundamentalist Islam. Many of the footsoldiers of the Taliban came from Pakistan and had been educated in the numerous *Madrassas* (religious colleges) located in the North West Frontier Province. These *Madrassas,* where the Taliban were largely created, were funded from Saudi Arabia and were strongly influenced by Wahhabism, an extremist form of Islam that is the Saudi state religion (T. Ali 2003: 323). Education in the *Madrassas* consisted mainly of religious indoctrination and training in obedience to clerical authority, but because they offered free education (with board and lodging provided) they attracted many students from poor families who could not afford to send their children to secular schools (T. Ali 2003: 196).

In May 2001, travelling the national highway between Peshawar and Islamabad, I passed many of these *Madrassas* near Nowshera. The word *Osama,* soon to become quite well known in the West, was written as graffiti on walls in villages along the road. The tensions that were about to become recognised as a problem in the West had long been a pressing source of political tensions in Pakistan. Here the linkage was readily apparent between the growth of fundamentalism - now linked to the proliferation of global "terrorism" - and

frustrations stemming from inequality and limited access to opportunities and resources. This issue will be revisited in the concluding section of the chapter.

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5.2.4 The Role of the Military

The military, in contrast to many other public organisations in Pakistan, is an effective and functional institution. It is widely viewed as being disciplined and largely free of corruption[115]. The military occupies an interesting position in Pakistani society. It can be regarded as forming a class or *caste* of its own and in many ways the Pakistan military occupies the place in society that was formerly held by the colonial British (Mustafa 2005). It commands a significant portion of national tax revenues (Encarta 2004) and its members generally enjoy a privileged lifestyle compared to that of other Pakistanis (regulated of course by differentiation according to status based on rank). Civil government in Pakistan has frequently been suspended by the military and it has held power directly for approximately half the 59 years since independence. Even when not ostensibly in power, the military has always wielded considerable political influence. Many senior positions in the civil service are held by officers who began their careers in the military and can be expected to have retained common attitudes and links with former comrades in arms.

Pakistani society, as noted, is marked by tensions between the rich and poor, tensions over control of land, water and other resources, tensions between religious fundamentalism and secular and humanist values systems, tensions between traditional values and modernity, tensions over issues of gender, and tensions between the people of different ethnic, tribal and linguistic backgrounds that make up the Pakistani population (Mustafa 2005). The military, as noted, is the single, central institution with the power to constrain these potentially divisive tensions, and to maintain order and the *status quo*. The army rules, in part, because of the power that comes from its position as hegemonic arbitrator over these internal divisions. Also of great importance in maintaining the legitimacy and pre-eminence of the military in Pakistani society, and securing public acceptance of the large portion of national wealth that it appropriates, is the unifying effect of the constant threat of war with India[116]. Since partition in 1947, relations between Pakistan and India have resembled a "cold war", with periodic outbreaks of more overt hostilities. This constant state of war serves the military-industrial interests in both countries. It also provides a unifying force that

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[115] T. Ali (2003: 257-8) refutes this general view, demonstrating that the army is significantly affected by corruption, but hierarchical discipline remains and underpins the army's ability to remain a functional institution and a force for cohesion, at least for the time being.

[116] This threat also makes Pakistan dependent on US protection and entrenches its subservience to American imperialist interests (T. Ali 2003: 166).

strengthens the sense of Islamic identity in Pakistan and Hindu nationalism in India, a factor exploited by religious and nationalistic politicians in both countries. Indeed, as Mustafa (2005) notes, this conflict "is at the core of Pakistan's sense of nationhood and its territorial security". Pakistan's ongoing conflict with India also has other implications of concern to the rest of the world[117]. It has fuelled the acquisition of nuclear weapons by both countries. As tensions mounted in the post September 2001 climate, there were serious fears that the situation could deteriorate to the point of nuclear war in the region. In 2005-2006, relations between India and Pakistan have been relatively cordial, but the underlying tensions and potential threats remain.

Corrupt democracy, entrenched feudalism, military dictatorship, sectarian conflicts, religious fundamentalism and institutional dysfunction are among the influences that make Pakistan's political and resource management environment a challenging one. The following section examines a fisheries management case study that operates within this environment.

5.3 Pakistan's Fisheries

Pakistan's total fisheries production was 623,425 metric tons in 2001 (Encarta 2004). Of this about three quarters came from the marine fisheries of the Indian Ocean and one quarter from inland rivers, reservoirs and irrigation systems. Primary production in fisheries employs over 300,000 workers, approximately 100,000 in the marine fisheries and 200,000 in the inland sector (FAO 1995b). National marine fisheries policy has encouraged fleet expansion and the development of export markets. It has sought to promote "rational, efficient exploitation of marine resources for the broad goals of national development. Consequently, policy makers' fisheries management concepts and techniques are generally less effective in addressing the needs of the coastal communities" (Siddiqi 1992: 395).

5.3.1 Marine Fisheries: Some Comparisons with Newfoundland

Dualism, noted as a feature of Newfoundland's fisheries, is also a pronounced characteristic of Pakistan's marine fisheries. Coastal waters to the 35-mile limit are reserved for and defended by artisanal fishers who mainly use small, inshore vessels, often powered only by oar and sail. The majority of the coastal fishers are poor and their lack of access to capital and equipment limits their productivity. Nevertheless, most coastal fisheries are

[117] T. Ali (2003: 199) has expressed concern about the growing influence of Islamic fundamentalism within the Pakistan military, especially among junior officers, who will become the senior officers of tomorrow and wield considerable power over Pakistan and its nuclear weapons.

overexploited due to "human population pressure, which exploits the resources beyond biologically sustainable limits" (Siddiqi 1992: 409). This is the familiar argument of "too many fishermen chasing too few fish" that was also discussed in relation to the Newfoundland cod fishery in chapter 3.

There is also a capital-based, industrial offshore sector. Siddiqi's (1992: 409) observation that "[m]ost of the available funds have been spent to enlarge and upgrade commercial fishing fleets, and comparatively fewer financial resources have been provided for technological or infrastructural development for the small-scale subsector" is also reminiscent of conditions in Newfoundland's fisheries in the 1960s and 1970s, as described by Wright (1997; 2001) and Brox (1972) and discussed in chapter 3.

In Pakistan, as in many other coastal fishing regions, there is a tension between the interests of a large population of relatively poor, small-scale, inshore fishers and capital-intensive industrial operations. The policy goals of government favour the development of a technologically modern, "economically efficient" fishing sector (Dr. M. Hayat, Assistant Fisheries Development Commissioner for Pakistan, Ministry of Food, Agriculture and Livestock, personal communication, 2001), but this policy direction, which implicitly favours industrialisation over more labour intensive methods, potentially threatens the survival of many thousands of poor subsistence fishers who have no other resources upon which to base their livelihood. The issues of dualism and fisheries development policy in Pakistan are in several respects comparable to those discussed in relation to Newfoundland in chapter 3.

In September 2000 (two years after assuming power in the 1998 coup) the Pakistan government under General Pervez Musharraf cancelled all offshore deep-sea fishing licences ("Decision on Deep-Sea Fishing on 14th: Shafi", *The News International*, Islamabad, 1/5/01: 17). These applied mainly to trawlers from Taiwan, China and South Korea. The ban benefited the Pakistani inshore sector, with its many thousands of small-scale fishers. Catches in this sector increased significantly following the reduction in offshore fishing effort. However, in May 2001 offshore licences were renegotiated. The local inshore fisheries sector lobbied for a continuation of the offshore fishing ban, but the government of Pakistan claimed to be under considerable pressure from the governments of Taiwan, China and South Korea to grant renewed access to fishing fleets from those countries. It voiced concern about resource sustainability and the interests of the Pakistani coastal fishers, but hinted at the need to consider broader issues in the national interest. The situation was somewhat complicated when Sind Province independently issued some offshore licences,

leading to a confrontation with the federal government, which challenged its authority to do so ("Sindh, Balochistan Violate Centre's Fishing Policy", *The News International*, Islamabad, 1/5/01: 12). The incident demonstrated an underlying lack of clarity in power relationships in Pakistan that is reflective of political instability.

One can speculate on the political considerations behind the withdrawal and reissue of licences. This could be viewed as a logical consequence of the transfer of power. It is understandable that the new government might seek to renegotiate arrangements for access to fish resources in a manner that secured greater benefit to itself. In a political environment characterised by personal involvement, patronage and corruption, renegotiation of resource access arrangements following a transfer of power is to be expected and reflects the relatively high degree of "sovereign risk" associated with doing business in such environments. While some rhetorical attention is paid to environmental concerns about sustainability, and social concerns about the interests of the Pakistani small-scale fishing sector, it is the offshore industrial sector that likely offers the best prospects for the use of political power to seek and extract rent from the fishery, for example, through payments linked to the issue of licences. On the other hand, the military government of General Pervez Musharraf, in the period following the coup, also needed to shore up popular support so as to enhance its legitimacy. But in addition to local support, gaining international legitimacy and recognition was also a key consideration and this generated pressure to grant foreign fleets access to fish resources. There are also parallels between this situation and that in the Newfoundland fishery in the decades preceding the cod crisis as discussed in chapter 3. There were the same competing policy pressures to serve the interests of the populous, local, inshore fishers for local political reasons, while also serving the interests of the offshore industrial sector (which tends, by the power of vested interest, to be able to muster a disproportionate amount of political influence), and the international sector out of consideration of issues of trade and international relations. This situation contributed to the failure of the Newfoundland cod fishery and could be expected to generate similar, unsustainable expansionary pressures in the Pakistani fishery. The similarities noted here also support the comparison of the characteristic dualism in Newfoundland's fisheries with dualism in the "undeveloped" world made by Brox (1972: 6) and discussed in chapter 3.

5.3.2 Freshwater Fisheries

Freshwater systems in Pakistan contribute about 150,000 tons of fish production, which mainly feeds local consumption. The inland sector employs approximately 200,000 fishers FAO (1995b); almost double the number that work in the marine fisheries. Inland fisheries

occur in rivers, lakes, reservoirs and irrigation canals. Many of these fisheries are enhanced by stocking with fry of various species, and represent a form of extensive aquaculture. While Pakistan's marine fisheries are considered to be fully utilised there is thought to exist significant potential for increased production in the inland sector. Water availability can be a limiting factor on production (C.Q. Ali, Ross and Beveridge 1991) but Pakistan's vast irrigation systems could be adapted to significantly increase its suitability for freshwater fish production (S.R. Ali 1999).

Pakistan employs some interesting contractual systems to manage inland fisheries. These systems include elements of private property rights and market instruments combined with production systems that are essentially feudal in nature. In the following section I present a case study of a small reservoir fishery, which illustrates the interrelationship of these aspects of management.

5.3.3 Rawal Lake Case Study: The Easy Integration of Market and Feudal Systems in Fisheries Management

Rawal Lake, located on the outskirts of Pakistan's capital, Islamabad, is primarily a water storage reservoir with a surface area of 8.8 square kilometres (Figure 5.5). The lake stores water for domestic supply to the city of Rawalpindi and provides a recreational facility close to Islamabad where boating, angling and family picnics can be enjoyed. It also supports a commercial fishery and an associated fishing community of about 200 people. This fishery is similar to many others based on small water storage reservoirs throughout Pakistan and India. These fisheries combine the characteristics of capture fisheries, due to their extensive nature and methods of fish harvesting, and aquaculture, due to elements such as species and stock enhancement through the introduction of hatchery produced fry (Sugunan and Sinha 2001).

Rawal Lake is a man-made reservoir and, like others of this type, it is subject to extreme, seasonal variations in water level. At the time of the study, in early May 2001, the region had been experiencing a drought and the water level had been drawn down exposing extensive areas of the lakebed. The lake, due to seasonal drawdown, is subject to considerable physical perturbation and also, due to stock enhancement with species exotic to the region, it represents a significantly altered ecosystem. Consequently, some environmental issues that may generally be concerns in fisheries management, such as those relating to the protection of biodiversity and natural ecosystems, have limited significance

here. It is the social and economic issues of production and allocation that are of most interest in this analysis.

Figure 5.5 Rawal Lake, April 2001

Research Approach

The case study was based on information gathered during several visits to Rawal Lake in late April and early May 2001. The methodology could be described as opportunistic and flexible, rather than tightly structured, and consisted of observing fishing and other activities associated with the fishery, and discussing matters relating to the fishery with fishers, members of their community, processors and others involved in the fishery in any way who were encountered at the study site. Some follow up interviews were conducted off site. A researcher (myself) and a Pakistani assistant conducted the field study118. This assistant was fluent in several languages including English, Peshto and Urdu, and this was vital to the exercise, providing essential translation skills.

During the field study we visited the fishers' village, located above the high water mark on the lakeshore. We made general observations of matters affecting the fishers' lifestyles such as access to water, fuel, building materials, education facilities, and the nature and quality of their habitations. We accompanied fishers on a fishing trip in Rawal Lake, and observed the methods and equipment that were employed. We also visited the camp and processing facility operated by the agents/employees of the "contractors" who held the fishing rights for the lake, and observed and discussed their operations. This camp is strategically located in a

118 The lead researcher has fishery management experience and practical familiarity with small-scale fishing gear and methods. The assistant is a Pakistani national who had recently completed a two year Master of Environmental Management Degree at the University of Tasmania in Australia.

public picnic ground on the lakeshore. The position overlooks the lake, from where fishing activity and movements to and from the fishers' village can be observed. The village is several hundred metres from the picnic site and car park, and is also separated from the public area by a small creek and scattered clumps of trees that provide a little distance and privacy.

An informal and unstructured approach was used in the interviewing process during site visits. Specific questions were introduced and the conversation directed towards areas of particular interest to the study. Other questions were asked as suggested by the general flow of discussion or by activities and observations as they occurred. To confirm responses relating to critical issues about management arrangements, key questions were asked of different sources, thereby providing confirmation by the process of triangulation. Extensive notes were not taken during the interviews, although some facts and figures were noted in a pocket notebook. Notes were written up in the evening following site visits. This allowed an informal atmosphere to be maintained and permitted the interviews to be free-ranging and flexible.

Language was a potential challenge to the interviewing process. As noted, the research assistant was fluent in English, Peshto (the tribal language of the Pathans, the predominant tribal group of the North West Frontier Province and Afghanistan) and Urdu (a widely used "common" language in both India and Pakistan and Pakistan's official language). Most of the fishers spoke only Sindi, the predominant language in the province of Sind in the south of Pakistan. Some of the children also spoke Urdu. Fortunately a relative of one of the fishers was visiting. He was a schoolteacher from their home village in Sind province. He spoke Sindi, Urdu and a little English and was a helpful source of information. He also assisted with translation, converting Sindi to Urdu, which the research assistant translated into English. The contractors' agents who operated the camp and processing facility were mostly Punjabis who understood Urdu, but they also included a Peshto-speaking Pathan. Key interview subjects also included a high court advocate who was interviewed while purchasing fish from the agent's camp. He was also visited and interviewed in his chambers. He was well informed about the fishery and its management arrangements and spoke fluent English.

The essential translation skills of the research assistant and the multi-lingual schoolteacher successfully overcame the potential challenges of communication. There is, however, a recognised potential for some misunderstanding or bias to be introduced through the translation process. There is also the possibility of the researchers being misled, either

deliberately or inadvertently, by subjects holding inaccurate perceptions of management arrangements and other matters. There is, in addition, the possibility of bias being induced into the interview process by the researcher demonstrating particular interest in some aspects of the fishery and its management or by "picking up" more strongly on certain issues while perhaps allowing others to pass unnoticed. Clarification of key issues relating to the property-rights mechanism of the management system was obtained by cross-referencing explanations provided by different stakeholders in the fishery and, where possible, by reference to literature sources. No significant inconsistencies were encountered.

Many interesting issues emerged that invited further enquiry, and Pakistan's freshwater fisheries would be fertile ground for more in-depth social research. Though limited by time and other resources this case study provided a useful insight into the interplay of feudal, community and market relationships in the fishery.

Overview of Management Arrangements

The Islamabad Capital Territory controls fishing in Rawal Lake. Exclusive commercial fishing rights to the lake are sold or leased by public auction for periods of three years. Auctioning fishing rights to inland waters for a fixed period, usually three years, is a common management practice in Pakistan ("Dera Ismail Khan: Indus River Fishing Rights Auctioned", *Dawn Internet Edition,* [http://www.dawn.com/2002/08/01/local37.htm accessed 12/8/04]; "Muzaffarabad: Mangla Dam Fishing Rights Auctioned", *Dawn Internet Edition,* [http://www.dawn.com/2004/06/23/local37.htm accessed 12/8/04]), and also in India (Sugunan 1995). At the time of the study, the rights to Rawal Lake were apparently held by a consortium of fish merchants, referred to as the "contractors" who, according to differing opinions expressed by fishers and the contractors' agents at the lake, paid somewhere between Rs1,500,000 – Rs2,700,000 (AU$50,000 - AU$90,000) for exclusive fishing rights for a three year period. This amount represents a significant resource rent for the fishery. The contractors pay additional fees to government-run hatcheries to pay to "seed" the lake with hatchery-produced fry of several species. Recreational fishing with rod and line is also permitted for a fee[119] of Rs10 per day (about AU$0.30). This explanation of the management arrangements is consistent with accounts reported in *Dawn* (and referred to above) of the auctioning of fishing rights to sections of the Indus River (in which some attempted collusion between bidders was noted), and auctioning of fishing rights to very large reservoirs. The latter case refers to Mangla Dam, which at 27,000 hectares is the largest reservoir in Kashmir. Fishing rights to this water, which supports 15,000 full-time fishers and produces over 1000 metric tons of fish per year, reportedly sold for Rs25.1

[119] It was not clear whether this fee is paid to the contractors or to the government.

million (approximately AU$800,000) for three years, with a further Rs6 million (AU$200,000) committed to pay to stock the water with hatchery-produced fry.

At Rawal Lake, the contractors engage under some form of agreement (or contract), the services of a *Sindi* fishing community to harvest the fish from the lake. The amount the fishers receive was variously reported as about 15 per cent of the retail market price of the fish, or as approximately Rs700 per 40kg (which worked out at about AU$0.60 per kg). The fish would probably have sold for about Rs70-150 per kg (AU$2.00-5.00 per kg) at retail markets in Rawalpindi and Peshawar.

Sugunan and Sinha (2001: 55) report the average yield from small reservoirs in India at approximately 50 kg/ha but note that this is low compared to production in other countries in Asia and Latin America. If this average is used to estimate the total annual production from the 880 ha of Rawal Lake, a yield estimate might be in the region of 44,000 kg or 44 metric tons. Correlating this figure with the auction fee paid for the fishing rights, and the fee of approximately Rs 25 million reportedly paid for similar rights in Mangla dam with an annual yield of over 1000 tons, suggests that the yield estimate and the price reportedly paid for the fishing rights to Rawal Lake are credible.

The contractor employs agents who live in tents on-site at Rawal Lake. From here they can oversee fishing activities and presumably police their employers' fishing rights by ensuring that fish are not sold by the fishers through other channels. They receive the fish from the fishers, weigh and record the quantity delivered, process them by gutting and packing the fish in baskets with crushed ice. These baskets of iced fish are then collected by small vans[120] for transport to the markets.

The Rawal Lake Fishing Community

The *Sindi* fishers of Rawal Lake come originally from Thatta, a large historic village located about 200 kilometres from Karachi in Sind Province. This is over 1000 kilometres from the study area. Sind is Pakistan's southern province and is bordered by its coastline on the Indian Ocean. Most of Pakistan's coastal fishers are *Sindi*. The fishers at Rawal Lake, however, identify themselves as a strictly freshwater fishing people with a long tradition of fishing the freshwater lakes in their home region in the lower Indus River Valley.

Sind is one of Pakistan's more conservative regions and is noted for a strongly entrenched, feudal social system, known as *Vadera* (meaning big man). The fishers at Rawal Lake,

[120] A small van and an ordinary motor car were observed being used for this task.

however, claim that there is no *Vadera* system operating there. The community itself appears to promote co-operation and resource sharing. Nevertheless, they live in circumstances of dependency and their access to the fishery as an economic resource is apparently at the discretion of the contractors, who, as a consequence, would seem to have considerable power over them.

The fishers of Rawal Lake live in what could be described as either a temporary village or a semi-permanent camp located in a patch of sparse forest near the lakeshore and close to a small, navigable creek, which, as noted, separates the village from the public picnic area (Figure 5.6). The population of the fishing community is about 200, of which about 35 are active fishers. They live in huts with walls and roofs made of grass thatching tied to frameworks of timber poles (Figure 5.7). These appear to be made entirely from natural materials found in the adjacent forest. The village has no clean water supply, sanitation or power[121].

It is doubtful whether the village or camp has any official status under planning arrangements for Islamabad and the Capital Territory. An NGO has provided funding for a teacher who provides some basic education for the children. Classes are held out of doors in the shade of trees. The teacher has a blackboard but there are few other facilities and the children sit on plastic sacks spread on the ground (Figure 5.8).

Figure 5.6 Fishers' village located in trees in the background

[121] The fishers complained that the contractors do not even supply them with a hand pump for water. They obtain water for domestic use from the creek and this may be dangerously polluted.

Figure 5.7 Habitations in the fishers' village are made of reed and grass thatching

Figure 5.8 Community children receiving schooling out of doors

Although they have fished Rawal Lake under contract for 10 years, the fishers do not seem to have any permanent security of access to the fishery, nor right of residence in the lakeshore village. The contractors, who hold the fishing rights, can apparently expel anyone who displeases them from the area. One could sense a certain discomfort by the fishers to discussing some of these arrangements in the presence of the contractors' agents. An indication of this was that the visiting Sindi schoolteacher, who was a spokesman for his fisher relatives, chose to speak in English about some of these matters when in the presence of the contractors' agents, although he was not fluent in the language. Communication was more effective when he spoke *Urdu,* which was then translated into English by the research assistant. But while the agents could understand *Urdu* they apparently could not understand

English and he indicated that he was not comfortable about them overhearing his expressions of dissatisfaction with the system.

Fishing Practices

Fishing was done exclusively by men and boys from about the age of 10 years and older. The fishers operated from small narrow boats. These were planked, partially decked vessels, resembling something like a cross between a skiff and a canoe, and ranging between about 3 metres and 6 metres in length (Figure 5.9). There were approximately 6 or 7 of these small boats, which were propelled by paddle. There was also one larger, motorised vessel (Figure 5.10).

Figure 5.9 Young fishworker in a small vessel of typical construction

Figure 5.10 The one motorised vessel observed in the Rawal Lake fishery. Rooftops of Islamabad in the background

A number of fishing techniques were employed. Several trap nets were set in the lake. They had leader nets of approximately a hundred metres length to guide fish into the central enclosure (Figure 5.11). There were 4 to 6 of these traps deployed in the lake at the time of the study. Large seines were also used to crowd and contain fish against a suitable bank, where cast nets were thrown to capture and extract them (Figure 5.10). Gill nets and hook and line were also used. It is likely that different methods would be favoured at different times of the year according to fish behaviour and other considerations. In warmer months, for instance, fish might spoil quickly in gill nets if left in the water for several hours, because fish that died in the net would soon begin to rot. At these times the catch might retain better condition if taken by methods such as trap nets that limited the delay between the death of the fish and their being processed and cooled with ice.

Figure 5.11 Trap nets in the middle of Rawal Lake

Figure 5.12 Cast net being thrown to capture fish enclosed in a large seine

The fishers at Rawal Lake indicated that they own the boats used in the fishery. Some of the other equipment, the trap-nets and the large seine net in particular, represent a considerable amount of capital investment. Unfortunately I did not determine whether these were owned by the contractors or by the fishers themselves.

Other Regulations

With the exception of very small fish of less desired species, which have little market value and were retained by the fishers for personal consumption, the fishers were required to deliver the entire catch to the contractors' agents. A minimum size of 12 inches applies to some of the more valued species of fish to allow them to grow to a productive size. This applies to the various types of indigenous and introduced carp. The fishery is closed during June, July and August and the fishers relocate during this period to other waters in the region in order to continue fishing. This closure coincides with the breeding period for some of the higher value species found in the Lake.

Fish Species

Several fish species were noted during visits to the site in early May 2001. These included the common or golden carp (*Cyprinus carpio carpio)* of up to about 1kg in weight (Figure 5.13), and silver carp (*Hypophthalmichthys molitrix)* of up to about 3kg in weight (Figure 5.14). This is a fast growing, pelagic fish that feeds on phytoplankton, and, in addition to its use for food, it helps to clean water supply reservoirs of clogging algae. Other species that were observed in the catch or thought to occur in Rawal Lake include *Catla catla, Cirrhinus mrigala, Labeo rohita, Chela chanius,* and *Ctenopharyngodon idella* (grass carp). The first three of these are Indo-Gangetic major carps. The rapid growth and general adaptability of these fish make them widely used species in culture-based fisheries in small reservoirs of India and Pakistan (Sugunan and Sinha 2001). A large basket-full of stunted tilapia of about 5cm length (probably *O. mossambicus*), a small catfish (possibly *Rita rita* or *Wallago attu*), and a large turtle[122] of an estimated 5-10kg in weight were also observed in the catch during site visits.

[122] Muslims are forbidden to eat turtles, they being considered *harram,* but the turtle was reportedly to be sold to local Chinese people who consider it a delicacy.

Figure 5.13 Common carp (*Cyprinus carpio carpio)* from Rawal Lake

Figure 5.14 Silver carp *(Hypophthalmichthys molitrix)* from Rawal Lake

Processing and Transport

As soon as the catch was brought ashore it was taken to be processed. This was done at a facility staffed by the contractors' agents or employees. Several of these agents were always in attendance at this camp/processing facility. This camp contained several large tents, which served as living quarters. The adjacent processing facility was in the open air and shaded by a tarpaulin (Figure 5.15). It contained a scale to weigh the catch, and three square concrete tanks of several cubic metres capacity, with wooden lids. These tanks were used to hold ice and fish for short periods from the time they were brought in from the lake until they were removed to market (Figure 5.16). At the time of the study daytime temperatures exceeded 40 degrees Celsius and, at this temperature, fish would rapidly spoil unless quickly chilled with ice.

The catch was weighed as fishers brought it in from the lake and the weights were recorded in a notebook that was held by the contractors' agents. Payment to the fishers was based on the weight of fish delivered and was apparently made weekly[123] after the catch had been sold. Large fish were gutted; smaller ones were left whole, before being packed with crushed ice in large baskets in which they were transported to market (Figure 5.17). A small van was used to deliver ice and other supplies to the site and to transport the fish to markets in Peshawar and Rawalpindi.

Figure 5.15 Contractors' agents at their camp located adjacent to the processing facility

[123] Debt bondage is common in Pakistan and, although not investigated here, is likely to play a part in fisher/contractor relationships in this type of fishery. Parallels may be drawn with the merchant credit "truck" systems that were common in the Newfoundland fishery prior to World War II as discussed in chapter 3.

Figure 5.16 The outdoor processing facility showing concrete tanks, and scales used to weigh the catch

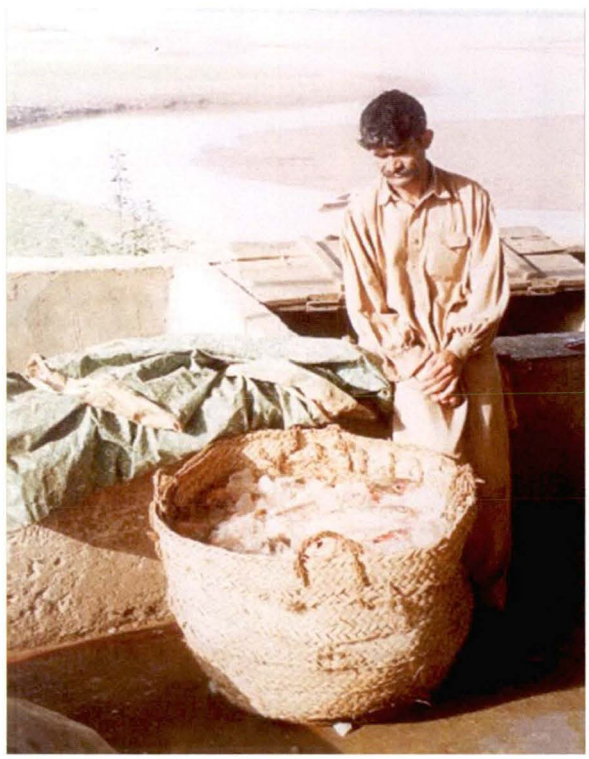

Figure 5.17 Basket of fish and crushed ice ready for pick-up and delivery to market

Discussion

The property rights mechanisms of the Rawal Lake fishery, and the way that these mechanisms influence other structures and relationships, are features of particular interest in this study. The auctioning of exclusive rights to the lake for periods of three years demonstrates continued government ownership of the resource and the ability to secure rent from it, but the lease represents a private property right. The operation of the fishery within this private property framework demonstrates a system of feudal dependency within which an egalitarian, cooperative community performs the basic role of primary production.

In recent years there has been considerable debate in developed countries about the privatisation of fishing rights through the use of ITQ and other mechanisms. Critics of privatisation have sometimes resorted to feudal metaphors to describe the social implications of resource privatisation and enclosure. The Rawal Lake fishery, which is based on private property rights, clearly demonstrates many feudal characteristics. This is not surprising as it exists within a society that is economically, socially and politically shaped by deeply entrenched feudal structures, a key factor being the marked degree of social and economic inequality that is a feature of dual societies like that of Pakistan. The compatibility of fishery management systems based on private property mechanisms, with feudal social structures stands as a notable feature.

Does the Market Auction System Overcome the Problem of Political Corruption?

The apparently open and transparent auctioning of fishing rights may (in theory) provide an impartial market mechanism to manage the fishery and allocate resources, a mechanism that is free of the sort of political manipulation and patronage so common in Pakistan. Perhaps the fishing community, if it wished to do so, could form a cooperative, obtain finance and buy the lease itself, and so cut the contractors, as middlemen, out of the supply chain and save the resources required for accounting and policing of the contractor/fisher arrangement. Sugunan (1995) examined the economics of a similar reservoir fishery in Rajasthan in India, and found that the fishers would have a significantly higher income if they did this. But one can conceive of many potential barriers to such an approach. These might include difficulties in acquiring finance, or a lack of the necessary self-confidence among fishers, a matter of attitude, education and social status, to attempt to extricate themselves from economic dependency. Likely there are also other well understood, embedded cultural structures linked to status and power that maintain barriers to people taking this sort of action and even apparently transparent auction systems can be subject to political manipulation, especially if there is any political discretion over payment. T. Ali (2003: 194) details how

state-owned banks in Pakistan were pillaged by politicians, businessmen and landlords who obtained loans and were not pursued to repay them. Non-payment of power bills to state-owned utility providers, particularly by large industries, was also common. A bidder who, through political contacts, is confident that he will not have to pay the full amount, if anything at all, can bid up the price to uneconomic levels and so gain access to resource allocation. This is speculative and may not be a common practice, but it is relevant speculation in the Pakistani context where corruption is recognised as pervasive, and where in a case like this, it could provide a structural barrier to social mobility for members of the fishing community and, thus, serves as a "conversion barrier" that maintains them in conditions of poverty and economic dependence[124].

Micro-Level Production Sustainability?

At one level, the fishery management system at Rawal Lake appears to work quite well in a challenging socio-political environment. As has been noted, a large and growing population places intense pressures on resources in Pakistan. Pakistan has one of the world's highest birth rates and for twenty years the indigenous population, especially in the north, has been augmented by over a million refugees from the turmoil in neighbouring Afghanistan. Extreme poverty is widespread, which intensifies competition for limited resources. Without effective controls to exclude people who lack jobs or access to other resources, the fishery in Rawal Lake and in similar places might rapidly be subjected to over-exploitation, damaging to its overall productivity. Viewed in this regard, the management of the Rawal Lake fishery is, arguably, effective. In a broader social environment, in which the maintenance of public order is tenuous, the fishery seems to be managed in an orderly and fairly stable way and to make an important contribution to the production of fish protein in a manner that appears, on the surface, to be ecologically efficient, sustainable, and economically viable.

It may be argued that private property rights are, indeed, necessary to manage resources in societies that are characterised by extreme inequality. The political imperative to use property rights to control access to resources so as to maintain power and privilege is easy to grasp. But the poverty that extreme inequality produces creates intense pressure on resources. People who are very poor would (in theory) if they were allowed to do so, be willing to exploit resources to the point of very low yield because their opportunity cost of effort is so low. Equal access models of fishery management may not, according to this logic, work where there are too many people who are so poor. If it is true that private

[124] Conversion barriers were discussed by Brox (1972: 70-74) in relation to the Newfoundland fishery and referred to in chapter 3.

property rights are not just a cause of inequality, but also become essential to managing resources in circumstances of great social inequality, then the trend to private property rights in the fisheries of the developed world may reflect growing inequality in these societies rather than simply being the managerial response to technological advances and resource limits that is often portrayed (as discussed in chapter 2). If the trend to greater inequality entrenches the necessity for resource management mechanisms that create further inequality then the process is clearly one that tends away from equilibrium.

A different view of the necessity of private property mechanisms could be explored through the argument that it is actually the egalitarianism and resource sharing within the Sindi fishing community itself that is the key to the successful functioning of the system. In the Rawal Lake fishery there is also a degree of mutual dependency between the contractors and the fishers in enforcing exclusive property rights to the fishery. While the contractors have, in theory, to guard against being cheated by the fishers, who could conceivably sell fish through other channels and keep a greater share of their value, they also have to guard against "their" fish being poached from the lake or stolen by outsiders. The *Sindi* fishers also have an interest in excluding other fishers, although they do not own a direct property right to any fish that poachers might take. This is because the resource is limited. They may not make a profit or recover any resource rent from harvesting fish at a subsistence level, but they earn their living from it, and fish removed from the system by others would leave a reduced overall income for the *Sindi* community. The community therefore has an interest in the "exclusivity" of access rights to the fishery, and its members do not appear to have access to other economic resources to which they could divert energy and mitigate reduced income from the fishery. From the point of view of the fishers, however, the fishery may be regarded as a commons, which is "sustainably" managed because of a shared sense of communal interest and responsibility.

Clearly the agreement or contract between the contractors and the *Sindi* fishers, gives them some security and a "stake" in the fishery, if only on a short-term basis for the term of the contract. The contractors also gain some benefit from the limited sense of resource certainty that the contract provides for the fishing community. By giving them a stake in the fishery, albeit a small one, it serves to discourage cheating as they have something to lose if detected. Incorporating the fishers' interests with those of the contractors in this way may be a necessary and important tool to guard against poaching, given the prevailing socio-economic pressures in the region. Entrenching a dependency of the fishers on the fishery and the contract is a key to aligning their interests with those of the contractors. The balance of power, however, remains very much with the contractors because of their power to exclude

fishers from the resource if they believe they have been cheated in some way. The fishers' livelihoods can, it seems, also be taken away when contracts come due for renewal and the harvesting contract could be reallocated to another group of itinerant fishers who might be more compliant to the contractors' interests and willing to accept lower economic returns or conditions.

While the fishing equipment used at Rawal Lake is not technologically advanced it may, nevertheless, represent an economically efficient balance between capital and labour inputs. The opportunity cost of labour is very low, probably less than Rs 30 (AU$1.00) per day. There may be advantages in having many people involved in the fishery and limiting capital inputs. From the social perspective more people would have the opportunity of earning a living from the fishery, although at a low subsistence level. And many eyes and hands may also be useful to guard the fishery against poaching.

The Fishers' Limited Economic Options

The *Sindi* fishers do not seem to have access to other economic options besides the fishery. There is little evidence of occupational pluralism. There was no evidence of vegetable gardens for domestic use, for example. An insecure tenure at their camp on the lakeshore, in spite of it apparently serving as their home for 10 years, may not encourage the development of gardens. Possibly there are cultural prejudices (by *Sindi* fisherfolk) against growing food crops. Possibly the contractors will not allow it and, as noted, it may be in their interests to ensure that the fishers remain exclusively dependent on the fishery. Possibly government regulations discourage food crops being grown in the area. Other opportunities for economic pluralism are also constrained by language difficulties and other factors. It might, for example, be difficult for the *Sindi* fishers or their family members to obtain other employment in the region. Their language is not widely understood here and they are unlikely to have the local family or tribal links that, in Pakistan, are so important in accessing jobs and other opportunities. Their boating skills might potentially allow them to provide boat rides for tourists and picnickers from nearby Islamabad and so take advantage of the recreation and tourism potential of the lake. But language would again be a barrier, and there may be other class or *caste* related issues, and for reasons already discussed, the contractors might oppose these sorts of activities.

The cultural and linguistic segregation of the *Sindi* fishers from adjacent society may, therefore, serve the interests of the contractors by the contribution this makes to maintaining their social isolation and dependency on the fishery. The contractors may choose to employ a *Sindi* fishing community for this reason in preference to fishers from the local region,

though it may be that the *Sindis* simply have the necessary fishing skills and occupational traditions. Whatever the reasons, the fishery reflects many characteristics of the occupational inflexibility associated with feudalism and the *caste* system. The inefficiency stemming from the constraints of these systems has already been discussed and may be a factor in limiting the economic potential of the Rawal Lake fishery and its fishing community, just as it is a factor that limits the potential of Pakistani society more generally.

Environmental Sustainability?

While the property rights system used to manage the Rawal Lake fishery seems to be enforceable and appears effective in protecting the resource from the threats of poaching and competitive over fishing[125], it has not proven to be effective in protecting the fishery from the effects of pollution. Ashraf, Tariq and Jaffar (1991) raise concerns that human health may be threatened by consuming fish from reservoirs affected by pollution from Pakistan's recent industrial and urban expansion. They also examined fish (*Catla catla* and *Chela chanius*) from Rawal Lake and found that 50 of 54 specimens tested exceeded the World Health Organisation's safe limit for mercury content (Tariq, Jaffar and Ashraf 1992). Tributaries that flow into Rawal Lake are polluted. Pollution sources include agricultural runoff, dysfunctional sewage systems and poorly regulated industries that discharge organic matter, human pathogens and toxic chemicals. Groundwater as well as surface flows are contaminated.

In July 2004 a major fish kill in Rawal Lake was widely reported (Arif and Zia 2004; Khan 2004; Qaiser 2004). Pollution from a combination of sources, including human wastes, runoff from a poultry farm, and chemicals from industry and agriculture, were all identified as possible contributing causes (Qaiser 2004), and a lack of coordination between various government agencies was identified as a problem leading to the failure to adequately manage pollution threats. Responsible agencies seemingly lacked the necessary powers and incentives to prosecute polluters. This is symptomatic of the pervasive problem of institutional dysfunction in Pakistan. Those with a more direct interest in protecting the fishery, the *Sindi* fishers, clearly lacked the power to prevent pollution. The contractors would seem to have a commercial, private property right that was affected by the impact of pollution on the fishery. Brubaker (1996) argues that privatising fishing rights is the key to preventing damage to fisheries from catchment pollution, but clearly private property rights have not been effective at Rawal Lake.

[125] Overfishing might otherwise occur according to the logic of the "tragedy of the commons" thesis and undermine efficient and sustainable fish production.

Pollution is a threat to fish production in lakes and reservoirs across Pakistan. Manchhar Lake in Sind Province is the largest, natural freshwater lake in Pakistan and has suffered severe degradation due to a reduction in freshwater inflows, and from pollution, especially from agricultural runoff (Memon 2000). Salinization, pesticides and pathogens have all damaged the fishery and Manchhar Lake's function as an important natural ecosystem and reservoir of biodiversity. The annual fish catch has fallen from 3000 tons in the 1950s to around 100 tons today. This lake has supported fishing communities for over a thousand years. The decline in the fishery in recent years has forced tens of thousands of people to move away (Memon 2000) to seek work where they can find it, and perhaps to become itinerant contract fishers like the *Sindi* fishers at Rawal Lake.

The failure to protect inland fisheries production from pollution is a symptom of dysfunction, not only in Pakistan's institutions responsible for environmental protection, but of the society as a whole. This dysfunction reflects the inability of Pakistani society to advance issues of common interest and is linked to the deeply rooted, divisive characteristics that have already been discussed. The society (as a whole[126]) lacks the general social preconditions that Jentoft (2000) identifies as essential to sustainable fisheries and sustainable fishing communities. Pakistani society (as a whole) can be said to be characterised by "opportunism, strife and conflict" rather than community solidarity. Thus it fits Jentoft's (2000: 54) description of unsustainable communities where "their capacity for collective action becomes severely weakened", and this leads to environmental failure. It also leads to other dangerous forms of irrationality.

The Waste of Human Resources

Life for the majority of Pakistan's people would be greatly improved if they had access to more and better education and health care, but the country is short of teachers and health care workers while the army, five-million-strong, imposes a huge burden on the economy. T. Ali (2003: 275) notes defence spending is six times the expenditure on health and education. Much low-cost labour is tied up in agricultural production but the potential to substitute machinery into the production process and displace some of this labour poses serious social and political problems due to already high levels of unemployment. Many people in Pakistan are employed as security guards and in other forms of private and public policing. The contractors' agents at Rawal Lake can be deemed to fall into this category in their policing role where their work relates only to regulating the distribution of resources, rather

[126] The Sindi fishing community at Rawal Lake may, itself, be cohesive, cooperative and functional.

than to production. Gross inequality in Pakistan exacerbates circumstances of intense resource competition and conflict and makes policing necessary if adequate security is to be provided so that productive activities of any sort can occur. But the emphasis on policing, which is linked to the rent-seeking orientation in the politics and economy of Pakistan, limits prosperity and civic advancement because it occupies human and other resources that could otherwise make a more productive contribution. It also constrains productive activities within narrow confines that are amenable to accounting and policing. Poverty, unemployment, inequality, poor education, poor health care, a lack of civic commitment and institutionalised corruption are all linked to dysfunctional human resources development and deployment in Pakistan. Strife and frustration are among the consequences, and these are linked to the rise of fundamentalism and fundamentalist inspired violence in the region.

5.4 Fundamentalism: An Extreme Expression of Community Dysfunction

In chapter 2 reference was made to the worldwide rise of various forms of fundamentalism associated with the increasing social disengagement, polarisation and employment and income insecurity that has been a consequence of neoliberal globalisation. In Pakistan, as has been discussed here, there is also a clear link between the rise of fundamentalism and the social consequences of resource failure. The implications for sustainability are severe. The inability of a society to advance common interests in sustainable resource management when beset by internal division, competition and conflict has been discussed in relation to the sustainable communities concept. But societies in the thrall of various forms of fundamentalist ideology, with their inherent irrationality, often fail even to acknowledge the importance of human values and needs, including those associated with resource and environmental sustainability[127]. Fundamentalist systems emphasise power sustained by an enforced adherence to doctrine and an authoritarian rejection of rationality. They are a symptom as well as an expression of extreme community dysfunction, and they predispose societies to the conditions in which, when faced by crisis, they are unable to take the measures that might allow them to avoid collapse. This issue has been examined by Diamond (2003; 2005) and was briefly referred to in chapter 2. In recent years, and particularly since the September 11, 2001 attacks on the United States, fundamentalism has become a significant issue of scholarly debate with particular interest given to the conditions that give rise to it. There are important connections between fundamentalism and the

[127] Fundamentalist religious movements that look forward with eager anticipation to the "end of days", or the end of the earthly material world, clearly, adhere to an ethos that is incompatible with a committed concern for environmental sustainability.

broader issues of resource management, community and sustainability discussed in this thesis and they merit some elaboration.

5.4.1 Judeo-Christian Fundamentalism and the Enlightenment

There is an established scholarly tradition (referred to, for example, by Mernissi [1992]; Bernstein [2004: 5, 91-125, 273-282]; Jacobs [2004: 3-26, 161-176]; Sim [2004: 31-101]) of examining the problems of the Islamic world - its intellectual and scientific backwardness, lack of democracy and individual freedom, its oppression of women and domination by religious fundamentalist movements - by contrasting them with the secular, humanist, democratic conditions more characteristic of the West; conditions which foster individual freedom and creativity and give rise to intellectual, scientific, social and economic advancement. Within this tradition, religion is discounted as an underlying cause. Reference is made to an Islamic golden age when circumstances were reversed. In the middle ages the Islamic world was noted for its racial and religious tolerance, its cultural refinements and its advances in philosophy, arts and science. At this time, in Christian Europe, "the Church was a smothering ubiquity" that suppressed "scientific rationalism" (Bernstein 2004: 32). Torture, painful death and, worse, "consignment to the eternal fires of hell" was inflicted upon those unfortunates who did "almost anything that displeased or challenged the power of the Church, including, but not limited to, questioning its authority, its beliefs, and most important, its wealth" (Bernstein 2004: 32). Bernstein (2004: 92) describes how the medieval Church held an "intellectual monopoly" which was "ossified into static belief systems that stifled inquiry and dissent", and it exploited this monopoly to extract wealth, engaging in "rent-seeking behaviour". The medieval Christian world, therefore, suffered under the yoke of a monotheistic clerical despotism comparable to that experienced in parts of the Islamic world in more recent times; Afghanistan under the Taliban regime being a notable and frequently referenced example[128].

128 The Taliban regime, which dominated Afghanistan in 2001, has frequently been used as an example to illustrate the characteristics of religious fundamentalism. The regime was notorious for its ruthless exercise of clerical authority. It used fear to enforce unquestioning obedience to a particularly conservative set of religious doctrines. Music, videotapes and books were banned and artistic representations of the human figure were prohibited. Strict dress codes were enforced for both men and women, and intellectual life and culture were suppressed. Obedience was enforced at gunpoint (Sim 2004: 75-78). In addition to concerns about terrorism, the Western preoccupation with Islamic fundamentalism has focused much attention on its oppressive treatment of women and restrictive attitudes on issues of sexuality. Homosexuality and adultery, for example, are both punishable by death according to *sharia* law as practiced in some Arab countries. In Afghanistan under the Taliban, women were excluded from employment and education, and forced into obscurity, forbidden to appear in public unless hidden behind the veil or bhurka. The repression of any public display relating to the human figure and especially the female figure with its implicit suggestion of sexuality, is a feature of fundamentalist Islam that confronts the ideals of Western secular humanism. Moroccan feminist academic Fatima Mernissi (1992: 127) argues that (fundamentalist) Islam, preoccupied with

The Christian world did not advance into the age of reason until, in quite recent times, science and, later, politics were separated from the stifling influence of monopolistic religious control (Bernstein 2004: 106). "Western man and Western culture" are now, according to Bernstein (2004: 93), "defined by this birth of scientific rationalism". The freedom for the individual to question, to reason and to form one's own opinion is at the core of this Western culture, and this freedom is strongly linked to the West's democratic attributes and its openness to scientific rationalism. The European Enlightenment began with the Renaissance and found inspiration in the humanistic legacy of ancient Greece and its achievements, particularly in philosophy, democratic governance and the arts. The Hellenic tradition celebrated individuality and elevated the human condition to a place of dignity and beauty. It is associated with reason and intellectual debate and the promotion of human values through open and secular forms of government based on democratic participation. The difference between the modern West and the Islamic world is that in the West the humanistic legacy of classical Greece emerged with the Enlightenment to have a significant influence, while in the Islamic world it was suppressed. Mernissi explains how adherents to Islam's rationalist tradition,

> *were systematically combated by the holders of power, who condemned them as falasifa (philosophers) who were 'polluting' Islam with the humanistic patrimony of ancient Greece ... they were repudiated as mulhidun (atheists) who were perverting the faith ... for fifteen centuries Moslem politicians have censored intellectuals who wanted to synthesize the humanistic traditions by labelling as polluting the very thing that creates the dynamic of all civilisation: its capacity to assimilate and use new ideas and accomplishments of the human spirit (1992: 26).*

Reason, intellectualism, modernity and the secular and democratic values are condemned, Mernissi observes, and "scholarly exploration is systematically discouraged, if not forbidden, since rational analysis would not serve the purposes of the despots" (1992: 24).

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the suppression of individuality, insists that the body be hidden behind the veil because "it is the body and its unconquerable sexuality that is the irreducible fortress of sovereign individuality." She goes on to speculate (1992: 133) that the fundamentalist phobia about the female body and sexuality has to do with their association with birth, and therefore also of death; "that death that religion has precisely come to deny and erase" for Islam, in common with the other Judeo-Christian religions, promises "the faithful immortality in exchange for submission" (1992: 128). Banishment of the human body, therefore, has to do with the suppression of the consciousness of human mortality that stands in contradiction to a principal article of the Judeo-Christian faiths; the promise of immortality. Thus, it is all about the suppression of essential realities associated with the human condition, which undermines self-confidence, distorts the capacity to reason and supports the perpetuation of power based upon obedience to myth and dogma. It also denies elements of biological reality that are integral and essential to the very concept of environmental sustainability.

The Enlightenment process was never complete or absolute. In East and West alike there is a continuing tension between the social and political impulses associated with fundamentalism and those associated with humanism. They can be viewed as contrasting extremes on a continuum, with humanism on the left and fundamentalism on the right. The interface of this tension is not fixed. Within states, institutions and individuals it is a moveable thing; it can shift, either slowly or dramatically, in one direction or the other in response to social and political trends and influences. Afghanistan in the 1970s, for example, was considered to be fairly liberal and secular. Women wore modern, Western dress and tourists visited from more conservative Pakistan for a taste of liberalism and decadence. Examples of shifts to the left, towards humanist values, include Spain after the death of Franco and the restoration of democracy, and more particularly France, when, following the revolution of 1789 and the post revolutionary turmoil, there emerged the model for the modern, secular, European state[129]. A diversity of attitudes can coexist within a society. In the Islamic world, for example, there are moderate individuals and institutions with values strongly grounded in the humanist tradition, just as there are, in the more secular, though traditionally "Christian", Western world, individuals and institutions holding to extreme fundamentalist values, and contradictory positions may even coexist within an individual or institution. The important question to address is, why, in Islamic societies today, fundamentalism is a dominating influence in contrast to the more secular, humanist orientation that has, generally, been regarded as characterising the developed countries of the West. The answer to this question may also provide insights into the causes of the recent rise of various forms of fundamentalism in the West.

5.4.2 Why Fundamentalism Dominates in the Islamic World

The problems of the Islamic world are widely linked to its restrictions on individuality and freedom of intellectual inquiry, restrictions that cause some parts of the Islamic world today to resemble those of Christian Europe in the Middle Ages. These restrictions are embodied in the Islamic tradition of *taqlid*, or "blind and unquestioning following and obedience" (Sim 2004: 62). Bernstein argues that "the prohibition of free intellectual inquiry inherent in

[129] Both of these shifts were associated with a blossoming of the arts, notably in their dealing with the human subject. The films of Pedro Almodovar, with their quirky and amusing exploration of unconventional sexuality are an example from Spain. The work of Courbet, especially his treatment of the female nude, was influential in elevating humanist realism in contempory art. He influenced painters like Manet, Monet, Renoir, Pissarro, Cezanne and Whistler at a time when the humanist concepts of liberty, equality and fraternity were ushering Europe into modernity and Paris was establishing itself as the cultural and intellectual centre of the Western world; a position it held for a hundred years (and continues to claim).

taqlid" accounts for the backwardness of the Islamic world: "A society that is inherently not curious about the outside world and unwilling to challenge its own assumptions is one that does not innovate. A society that does not innovate cannot advance or prosper" (2004: 277). Sim (2004: 61, 77, 107, 172, 215) notes the growing dominance of the tradition of *taqlid* associated with the rise of fundamentalism in the Islamic world, and the demise of *ijtihad*, a tradition associated with humanistic and rational values. But what is the underlying cause of this trend? Religion has been discounted. Christianity and Islam are both susceptible to fundamentalism. The predominance of fundamentalism over secular humanism in much of the Arab and Islamic world, therefore, is likely due to other factors there that foster it. It is logical to speculate that these factors relate to those social, political and economic conditions characteristic of much of the Islamic world that are in marked contrast to (perhaps transient) conditions in the West. Key, interrelated factors are inequality; the entrenched social dualism of the Islamic world; and the preponderant rent-seeking orientation of their political-economic structures and cultures. Examples of this rent-seeking orientation include the agrarian feudalism of places like Pakistan, and the rent-seeking structural characteristics that arise from petroleum wealth in places like Saudi Arabia. Democracy, it seems, cannot function under these conditions. Mernissi (1992: 166), for example, describes how fundamentalism has been sustained by Saudi oil wealth and "the absence of democracy, which results in this wealth being managed as a monopoly by a few families ... It is normal that millions of unemployed Arabs dream of a more favourable distribution of this wealth" (1992: 165). And she notes (1992: 165-166): "the role of oil in fundamentalism should never be forgotten. The resistance to progressive ideas, financed in large measure by the Saudi oil money that was simultaneously producing an extravagant, princely Islamic culture, gave birth to a rigid authoritarianism".

Further, in the Arab world, politicians use Islamic fundamentalism to entrench despotic rule (Mernissi 1992: 38-41). Obedience to the leader is equated with religious belief and obedience to the will of God. Individual creativity and the cultivation of personal opinion are forbidden. But the suppression of 'reason', because of the challenges it might raise against despotic rule, accounts, claims Mernissi (1992: 39), for the "military, economic, political, and ethical decline" of the Arab world.

Bernstein (2004: 274) argues that the difference between the West and Islam has "little to do with religious doctrine, and everything to do with local culture". "This lack of religious correlation cannot be emphasized enough", he states (2004: 300). Culture, he argues, is determined by geography and he suggests that the conservative, or fundamentalist culture of parts of the Arab world would be the same if the populations had adopted Christianity or

Judaism instead of Islam. He, like Mernissi, links the problems of the Arab world to the "curse" of natural resource wealth, noting "the production of wealth from a limited number of holes in the ground, owned or controlled by the government, begets rent seeking and corruption" (2004: 290), and this, as has been discussed, leads to poverty, inequality and despotism, conditions in which fundamentalism flourishes.

Sim (2004: 106-107) links the rise of fundamentalism in the third world to the poverty and inequality that has been exacerbated by economic policies promoted by the "market fundamentalism" of agencies such as the World Bank and IMF. These policies have, in many cases, exacerbated inequality and made the poor even poorer and this has driven them to join extremist movements. They embrace "Islam as a defence mechanism", he argues (2004: 107). Mernissi agrees (1992: 113), noting the attractions of Islam to the poor and dispossessed: "... as the culture most capable of channelling popular frustrations, Islam gives the faithful enormous expectations of social solidarity." She argues that Islam has become "a force for the destabilisation of privilege, whether regional or global", whilst also acknowledging that the Islamic religion is exploited by both secular and religious politicians to entrench despotic rule through its insistence on obedience and faith, and denunciation of individuality and humanist rationality. Since Islamic fundamentalism is attractive to both despots (because it entrenches authority) and the disempowered (because it promises justice to the oppressed, albeit in another world), one can understand that its influence is likely to grow in a political environment characterised by widening inequality, poverty and unemployment and a narrowing concentration of power.

Mernissi also links inequality in education to the rise of fundamentalism. In much of the Muslim world (as discussed earlier in relation to Pakistan) the children of the rich and poor receive a very different education, and this unequal access to education, which is linked to entrenched dualism, "creates an intense animosity between classes" (Mernissi 1992: 80). There is a great "bitterness over wasted talent ... and inequality of opportunity" (Mernissi 1992: 56) and this, because democratic outlets for their frustrations are barred to them, causes people to turn to religion (Mernissi 1992: 57).

Tariq Ali takes the argument further and shows that religious fundamentalism in Saudi Arabia (2003: 73-85), Pakistan and Afghanistan (2003: 166-216), Indonesia (2003: 343-393) and other parts of the Islamic world, is more than just a by-product of neoliberalism, but was deliberately engineered in the decades following World War II to serve the interests of American imperialism. Fundamentalist Islamic movements were nurtured by dictators and their US allies as a counter to Soviet influence and communism. Political movements with a

secular, humanist, democratic and socialist orientation in these countries were actively suppressed. For this reason he regards American imperialism as "the mother of all fundamentalisms" (2003: 307).

5.4.3 The Origins of Democracy

The paradox that rent-producing resource wealth tends to produce inequality, social division and conflict, and that this gives rise to despotism of one sort or another, and leads to poverty, has already been raised. Resource poverty, on the other hand, has been linked to the evolution of egalitarian, democratic, civic-minded and prosperous societies. With reference to Hanson's (1999) influential work, Bernstein (2004: 57) explores the theory "that the origins of Western democracy" preceded the glories of Periclean Athens by several centuries. They were founded by the independent *geôrgos* (peasant farmers) of the marginal, hill country surrounding Athens around 700 B.C. Bernstein emphasizes the role of private property rights as the vital ingredient linked to the flourishing of individual liberty and democracy. Dedicated individual effort was required to make these marginal lands productive of a diverse yield of grapes, cereals, legumes, fruits, nuts and livestock. Surety of continued private ownership underpinned the investment of labour required to develop vines and fruit trees where the rewards might not accrue for several years.

> *The era beginning around 1100 B.C. presented a protocapitalist opportunity to Greek peasants, and they exploited it in great numbers. By 700 B.C., as many as 100,000 small farms, averaging ten acres in size, flourished in Greece. Fiercely individualistic and antiauthoritarian, giôrgoi manifested their independence in ways that are deeply embedded in modern Western life, and they changed the course of civilisation itself (2004: 58-59).*

Bernstein (2004: 59) identifies three key elements to this socio-political system: private property, egalitarianism, and military self-sufficiency. Private property has been discussed. Military self-sufficiency was provided as "neighbouring farmers would typically band into the hoplite phalanx", each supplying his own weapons and armour. But egalitarianism, the key to democracy, rested on the fact that the landholdings "were small and widespread."

Bernstein reinforces his argument by contrasting the egalitarianism of the foothills surrounding Athens with conditions in more fertile areas:

> *The parts of Greece that were rich in bottomland, like Macedonia and Sparta, would not develop democracy, private property rights, and individual freedoms. It was not by chance that Alexander the Great, the very antithesis and destroyer of Greek democratic values, hailed from the flat, fertile north (2004: 58).*

This thesis reinforces the nexus between egalitarianism, democracy, and the assertion of humanist values. It also identifies rich, rent-yielding resources as a source of inequality and despotism. The role of inequality and despotism in undermining the ability of a society to achieve prosperity and environmental sustainability, and the effect this has on fuelling the frustrations that give rise to religious fundamentalism and the abdication of individual responsibility and reason has been discussed. This has obvious relevance to resource and economic management in contemporary society, including debate over policy for fisheries management. Paradoxically, arguments such as Bernstein's are often applied in a perverse way. The element of 'private property' is seized upon by market fundamentalists to justify enclosure of the commons, often leading to resource monopolisation, thus undermining the opportunity for individual, egalitarian access to resources that is, arguably, the critical basis of an egalitarian and democratic society. Economic rationalisation and the promotion of 'economic efficiency' over 'social values' in resource management can also be understood as facilitating the use of technology and other instruments to generate resource rent, that is, to shape resource economies to more closely resemble the rich, rent-yielding bottomlands of Sparta and Macedonia than the stony hills of Attica that produced such a rich social yield for humankind[130].

5.4.4 The Rise of Fundamentalism in the West

The tradition of examining fundamentalism in the Arab world by contrasting it with conditions in the West is giving way, in the post 2001 world, to a tendency to examine the rise of various forms of fundamentalism in the West by comparing them to the well known characteristics of Islamic fundamentalism (for example, T. Ali [2003]; Jacobs [2004]; Sim

[130] An interesting comparison can be made between the marginal, stony foothills that surround the rich valleys of the tributaries of the Indus in Pakistan and the stony foothills surrounding Athens in 700BC. Agriculture in these mountains is hard, but great ingenuity and investment is applied to make the land yield a living for its owners. Apricots and walnuts are cultivated, cereals are grown on small terraced plots and a variety of vegetables and animals are raised. The mountain Pathans of the region are fiercely independent. They successfully resisted British control in colonial times and have remained independent of the Pakistan government in the autonomous tribal areas that border Afghanistan. They also have a more egalitarian social structure, in contrast to the pronounced stratification that is a general feature of Pakistan. They band together in defence of their interests, fiercely observing bonds of tribal and family loyalty that have greater precedence with them than religious affiliation. The men customarily keep their own arms which they use to maintain their tribal interests and their personal honour. It is among these people, bound to codes of conduct that require them to show hospitality to guests, that Osama Bin Laden is thought to have found refuge in the years since 2001.

[2004]). The purpose is to draw attention to the growing threat to the secular, humanist values that have been thought of as characterising and defining Western societies. Fundamentalisms of all kinds have certain characteristics in common. Intolerance is a core trait: "the fundamentalist mind does not like difference, it does not like dissent. What it really likes is submission to the system and uncritical adherence to the creed" (Sim 2004: 12). It is authoritarian - fundamentalists believe that they hold the absolute truth – and it is about the power that comes from enforcing adherence to a particular set of beliefs.

In Pakistan, as we have seen, the rise of fundamentalism can be linked to poverty, inequality and the desperation of people displaced from access to resources, for example, by the mechanisation of agriculture and conflicts over land, or as a consequence of the environmental degradation of inland fisheries. The fear of Islamic fundamentalism and terrorism, that has intensified in the West since September 11, 2001, makes these issues relevant to formerly insulated and complacent Western audiences. But of far greater danger to the wellbeing of Westerners, and to the survival of secular, liberal, democratic societies, is the rise of various forms of homegrown fundamentalism. Sim argues that the world is descending "into a new dark age of dogma" (2004: 7, 19, 224) and that, increasingly, "we live in a fundamentalist world because fundamentalists exert such a powerful influence on so many of our institutions - religious, political, and economic". He notes that fundamentalist tendencies can be found among individuals affiliated to just about any set of values; there are Marxist fundamentalists, environmental fundamentalists, feminist fundamentalists, and fundamentalists preoccupied with issues of race and nationalism, but he focuses particular attention on 'market fundamentalism' and Islamic and Christian religious fundamentalism, which are, today, such powerful forces in global politics.

Sim observes (2004: 106-107) that "fundamentalism begets fundamentalism" and the rise of Christian fundamentalism and various forms of racial and nationalist fundamentalism in the West is, in part, a reaction to the growing fear of Islamic fundamentalism and instability in the third world. But more than this, the rise of fundamentalism in the Western world is also, perhaps mainly, attributable to the same things that cause it elsewhere; the growth of inequality, the demise of social cohesion and a growing sense of social, economic and environmental and resource insecurity. These matters have all been discussed in this thesis in relation to resource management in Newfoundland and Tasmania as well as Pakistan. They are associated with the dominance of market fundamentalism as a force shaping economies around the world (Sim 2004: 102-135). This attribution establishes a link between the rise of fundamentalism in the West and resource management driven by neoliberal concepts of economic efficiency, which has dominated policy-making in the West

and around the world for the past quarter century, and has been a factor in socially, economically and environmentally unsustainable fisheries as discussed in earlier chapters of this thesis.

Writing in an Australian context, Mackay (2005: 3-4) explains the link between fundamentalism and a quarter century of neoliberal policies:

> *The anxiety created by living through such a period of transformation, instability and uncertainty promotes a tendency to retreat and disengage from the social and political agenda. Such a period is also a rich breeding ground for fundamentalism of all kinds. It is a time when extreme and simplistic voices are likely to be given more attention than they normally are, almost as if our insecurities create a vacuum we yearn to fill with simple certainty".*

The effects of the growth of inequality in the West since 1980 when neoliberal economic policies began to predominate are reported by Bernstein (2004: 335-347). He focuses on the United States where income inequalities have escalated since 1980 following a period of relative equality from the 1940s through the 1970s (see also "Special Report: Inequality in America", *The Economist,* 17/06/2006: 25-27). Income inequality is now at a level comparable to that of the "robber baron" era at the beginning of the twentieth century. Bernstein (2004: 343) suggests that this level of inequality is "pushing the envelope" of social and political stability. It is only Western affluence that diffuses, to some extent, the social and political tensions inherent to inequality that, in the Islamic world, are linked to the rise of religious extremism. But the tensions are already apparent and the sustainability of Western affluence may be threatened by various emerging local and global social, political, resource related and environmental crises.

Jacobs (2004), like Sim (2004), resorts to metaphor in a "*Dark Age Ahead*" to express her concern about the direction being taken by Western civilisation. She identifies five pillars of society that are being eroded: the family (2004: 27-43), higher education (2004: 44-63), scientific rationalism (2004: 64-101), representative governance (2004: 102-124), and the integrity and self policing of the professions (2004: 125-138). In the Australian context Brain (2001: n.p.) raises similar concerns, linking neoliberalism and a "dictatorship" of financial interests to the erosion of democracy, education, research and development, and environmental protection, and Ellingsen (1999: 31) demonstrates that, in Australia, academic freedom is being undermined by a system "intolerant of dissent", as University administrations, forced into an increasingly commercial role, put pressure on staff to prevent them from expressing views that are critical of government policies or detrimental to corporate interests because this puts sources of funding in jeopardy.

Sim (2004: 175-177), too, argues that Australia (and the West generally) is moving away from its secular and humanist political traditions towards a more conservative politics, one more influenced by religious values. Obedience is being cultivated rather than intellectual freedom, creativity and the ability to express one's own opinion. The trend is towards the fundamentalist *taqlid* rather than a culture of *ijtihad* associated with humanist intellectual freedom. A plethora of recent books also address this theme, among them *The End of Faith: Religion, Terror and the Future of Reason* (Harris 2004), *The March of Unreason: Science, Democracy, and the New Fundamentalism* (Taverne 2005), *The Twilight of Atheism: The Rise and Fall of Disbelief in the Modern World* (McGrath 2004), and *How Mumbo-Jumbo Conquered the World* (Wheen 2004).

These concerns about trends in Western societies are also relevant to the discussions of fisheries policy and sustainability in chapters 2, 3 and 4. They are relevant to the question of how the current trends in fisheries management may be both reflecting and contributing to the shaping of societies – contributing, among other influences, to making societies that will be characterised by the sort of entrenched inequality and institutional dysfunction discussed in relation to Pakistan and linked to social, political and environmental unsustainability.

5.5 Conclusion

The Pakistan case study provided the opportunity to study resource management in a society marked by intense social and economic stratification and an economy structured towards an emphasis on rent-seeking activities. Historically entrenched inequality, identified as a factor that contributes to unsustainable resource management in Newfoundland and Tasmania, is a pronounced characteristic of Pakistani society and is linked to other aspects of societal dysfunction, resulting in a seemingly perpetual state of political, social, economic and environmental crisis. Symptoms include social discord, pervasive corruption, unproductive use of human and other resources, a poorly developed civic culture and the failure of democratic processes of government, an inability to manage pollution and promote environmental sustainability, and the rise of extreme expressions of community dysfunction.

The case study of the Rawal Lake fishery provided some insight into how, within this challenging socio-political environment, a combination of private property and community mechanisms can serve quite effectively to regulate the harvesting sector of the fishery, yet fail in other ways. It fails in social terms because it serves to perpetuate the entrenched inequality that is a cornerstone of many of Pakistan's problems, and, in part because of this, it fails to contribute to developing solutions to wider systemic problems, such as

management of environmental pollution, which directly threatens the sustainability of this and other fisheries. Fishery failures due to environmental degradation is one cause among many of the displacement of people from access to resources in Pakistan. It adds to the multitudes of frustrated and desperate people in the region. It swells the ranks of the unemployed and is linked to the rise of fundamentalism and violence, and this has become an issue that concerns not only Pakistan, but also the wider global community.

Political and resource management cultures based around resource wealth tend to emphasise rent-seeking activities, and promote inequality and social stratification, which are associated with the rise of fundamentalism. Moreover "fundamentalism begets fundamentalism" (Sim 2004: 105-107); market fundamentalism, for example, projected on a global scale through the advance of neoliberal economic policies intensifies inequality and poverty in many parts of the developing world and has been linked to the rise of Islamic fundamentalism and terrorism, which in turn stimulates fear and the rise of other forms of fundamentalism in the West. The fundamentalist preoccupation with power, and the tendency to emphasise obedience to authority, necessitates the enforcement of irrational doctrines and the suppression of reason, individual opinion, and democratic processes; and the suppression of these qualities undermines the capacity of societies to function cohesively and creatively to address complex problems, such as those related to the challenges of achieving sustainability, whether viewed in regard to social, economic or environmental dimensions. The assertion of irrational dogma over more tangible and organic human values makes concerns over issues such as environmental sustainability, and even economic prosperity, irrelevant to fundamentalist regimes preoccupied with the maintenance of power. Conditions in which democratic, egalitarian, rational societies flourish are those whose economies are not dominated by rent producing resources which encourage rent-seeking activities and sustain despotism. One can logically associate the trend, discussed by Sim (2004), towards "a new dark age of dogma" in Western countries, with the widening gulf of inequality that arises, in part, from economic policies based on the principles of "market fundamentalism". Fisheries policies (such as those examined in this thesis in relation to Newfoundland, Tasmania and Pakistan) that promote economic efficiency (in terms of generating resource rent) while intensifying inequality in society, fit this category, and help push societies towards community dysfunction and the despotism that is associated with various forms of fundamentalism. The linkage, via these processes, of global trends in fishery management with the rise of fundamentalism provides a strong point of relevance for this thesis in the fisheries policy debate over "economic" versus "social" goals.

6. Summary and Conclusion

The thesis was based on three case studies, featuring Newfoundland, Tasmania and Pakistan. Fisheries issues were examined in the context of a global fisheries crisis and trends in fisheries were linked to broader socio-political and economic trends. Implications for the sustainability of fisheries and of human societies more generally were explored. The case study approach, while having some noted limitations, is useful for building theory from which generalisations with a wider application may be drawn. Analysis of political economy within primary sectors such as fisheries is also an approach that provides insights that can then be applied more broadly. These precepts shaped the analytical approach in which the specifics of resource management policies and practices were linked to broader socio-political factors and influences. In chapter 2 the connection between current trends in fisheries management and the global ascendance of neoliberalism as a dominant political and economic philosophy was made explicit, and some consequences of neoliberal globalisation were discussed. This provided a context for the case study chapters in which the interconnection of key themes such as rent-seeking economic policies, inequality, and social and environmental sustainability were examined. These themes provided analytical focus in the thesis and the principal arguments were developed and refined as the research progressed through the case study chapters.

6.1 Chapter 2: The Context

Since the early 1990s there has been a growing sense of crisis in global fisheries and increased concern about sustainability. Worldwide, there has been an intensifying confrontation between the expansionary pressures of excess harvesting capacity in the global fishing fleet, and the constraints of ecological limits. This generates a sense of resource scarcity and intensifying competition over fishery resources. Characteristic of this competition, which in various forms has a long history and is endemic to many fisheries worldwide, is conflict between capital intensive, "industrial" harvesting technologies and "small-scale" labour intensive methods. Conflict between capital and labour interests – between global finance and local people and communities - is often the key underlying issue in the "economic" versus "social" fisheries debate. Advocates of the economic fishery paradigm, in general, favour the interests of capital accumulation, rent-seeking and centralisation. The social fishery paradigm, on the other hand, promotes a wider distribution of resource wealth among fisherfolk and peripheral fishing communities. The concepts of "economic efficiency" versus "equality" are often referred to in debate over matters of

technology and regulation that have inevitable distributional implications. The broader legitimacy of both the social and economic paradigms also rests on their addressing concerns about sustainability, and again, different perspectives on conservation are often linked to underlying interests and matters of distribution.

The economic fishery paradigm, linked to neoliberal economic theory, has been ascendant in fisheries management for the past three decades. Its conservation/sustainability rationale is grounded in the "tragedy of the commons thesis" (as articulated by Hardin [1968]) but its theoretical foundations are more accurately expressed in the bio-economic modelling of Gordon (1954) and Scott (1955)[131], which give a greater emphasis to an economic, rather than an ecological perspective. The paradigm's emphasis on economic efficiency means that powerful and potentially damaging fish harvesting technologies are favoured, and in these circumstances, conservation depends to a significant degree on the combined effectiveness of fisheries science to accurately model fish-stock populations and thereby set sustainable harvest levels, and regulation to constrain fishing effort to those sustainable levels. Where it is deemed necessary to limit the harvesting capacity in a fishery[132], there is an emphasis on reducing the number of people/vessels involved rather than on reducing the power (efficiency) of the individual fishing units. In its most developed form, the economic paradigm features fishery management systems based on private property rights such as individual transferable quota. Here, the sustainability rationale is augmented by the claim that private property rights in the fishery provide an incentive for resource conservation.

The social fishery paradigm is, in many respects, more an articulation of dissent from the economic paradigm than a prescriptive model in itself. Its critique of the economic fishery model has two important dimensions - first, at an immediate and practical level, that the economic paradigm fails to promote sustainable fish-harvesting practices, and second, that it produces broader, adverse socio-economic effects, linked to inequality, that undermine the capacity of a society, at a systemic level, to respond rationally and cohesively, as required to successfully address a range of challenges to sustainability.

The critique of the economic paradigm highlights problems associated with the use of industrial fishing technologies that are often wasteful of fish stocks and damaging to marine habitats. High capital overheads and high marginal profitability also create economic

[131] Scott and Gordon's models were primarily concerned with maximising the production of an economic surplus, or resource rent, from the fishery.

[132] Constraining effort is not always necessary for resource conservation but (according to the theory of the models) effort constraint is always necessary for rent maximisation.

incentives that encourage overfishing. Associated with the use of powerful technologies, the economic fishery's dependence on fishery science (and regulation), rather than bio-economic feedback mechanisms as the basis of conservation also attracts criticism. The dynamic, sometimes chaotically fluctuating nature of marine ecosystems means that, even with the best available science, fish stock population models are often of dubious accuracy and precision. They are subject to "interpretive flexibility", and management decisions based on them are frequently influenced by short-term economic and political interests at the expense of conservation and sustainability.

Proponents of the social paradigm emphasise the advantages of small-scale (efficiency constrained) technologies, and pluriactive fishing economies that are more closely integrated with and responsive to ecological fluctuations in the fishery. Advocates of both the economic and social paradigms can produce fisheries case studies that appear to support their arguments. But the social paradigm embraces greater complexity and a broader, more holistic perspective on sustainability, and it is here that the second dimension of its critique of the economic fishery becomes important. This relates to the concept of sustainable communities. The crux of the sustainable communities argument, as outlined in chapter 2, is that a society's ability to respond effectively to various possible challenges to sustainability rests on underlying socio-cultural conditions – a sense of ethics, community integrity and cohesion built upon shared and common interests is essential. The argument relates to the importance of ethical and social considerations as mechanisms to encourage fisher compliance with conservation measures in harvest fisheries; it is even more cogent when dealing with broader sustainability issues, such as managing catchment pollution, where competing interests and threats to sustainability may be less obvious, less direct, and more widely dispersed within a community, and sustainability is, correspondingly, more dependent on the maintenance of an effective sense of ethical concern for the wellbeing of the social/environmental system as a whole; a sense of concern that must be sufficiently encompassing and powerful to transcend individual or sectoral self-interest. Such an encompassing concern is encouraged by shared interests and discouraged by competing ones. Critics of the economic fishery paradigm argue that the model, conceptually and in practice, promotes inequality, selfishness, competition and resource exclusion and thus undermines the essential community structures and values, based on resource sharing, that are deemed necessary for sustainability.

In spite of theoretical objections and, frequently, strong opposition from fishing communities, the economic paradigm has become the dominant fishery management model

over the past few decades[133]. It has come to be regarded as the orthodox approach to fishery management and it has shaped a worldwide trend towards the adoption of management systems featuring instruments such as ITQ. The adoption of ITQ in a number of countries was discussed in chapter 2 and linked to broader trends in socio-political conditions and cultural attitudes, and especially to the ascendance of neoliberalism as a dominant political and economic ideology[134]. Indeed, it is fair to argue that the economic fishery paradigm is, in essence, merely the translation of neoliberal ideology into fisheries management. Neoliberalism, as described in chapter 2, is a political and economic ideology of the post-Cold War era that advances the "globalisation of the capitalist economy" (Martinez and Garcia 2000: 1-2). It promotes an "economic efficiency" agenda based on the privatisation of public resources in ways that render them amenable to market mechanisms of allocation, and it encourages competitive individualism and the elimination of a sense of community. These are also key features, noted by critics, of fishery management models based on ITQ.

Recognised consequences of neoliberal globalisation include widening inequality, within and between countries, as a greater share of income flows to rentier-capital and less to labour. Also, worldwide, there is a spread of employment and income insecurity associated with people's alienation from access to resources. The same effects, as has been discussed, are attributed to fisheries management systems based on ITQ and these social effects are, as has also been discussed, linked to the erosion of social cohesion and the communitarian spirit required for sustainability. More generally, the increased economic insecurity and social polarisation associated with neoliberal policies is linked to the rise of intolerance and prejudice, and to social disengagement; it is also linked to the rise of religious and other forms of fundamentalism as people, increasingly desperate and disempowered, retreat from rationality when their circumstances are such that rationality leads only to despair, and they

[133] It should not be surprising if the majority of fishery management professionals favour the economic paradigm over the social. They have a vested interest. The economic paradigm is generally (and indeed theoretically) dependent on the services of institutional and academic fishery scientists, on professional fishery managers, and on fisheries officers to police the regulations. Economic fisheries also provide opportunities for a range of other rent-seeking professions such as politicians, lobbyists and lawyers. By contrast, social fisheries are often community based and ecologically integrated and have little need for the services of the fishery management professions.

[134] Two alternative pathways explaining the increasing adoption of ITQ in fisheries were presented in chapter 2. First, that it is the "rational" response to the "tragedy of the commons problem" arising from increasing demand on scarce environmental resources due to modernisation and population growth, and, second, that it merely represents the extension of neoliberal economic principles to fisheries that has been extended, over recent decades, to other areas of society and the economy. These differing explanations are not incompatible. But acceptance of both leads one naturally to hypothesise that broader, global issues of intensifying resource and environmental crisis may be an important underlying cause of the worldwide trend towards neoliberal social and economic policies in general, which in turn exacerbate the underlying economic and social causes, leading to a positive feedback situation and a downward spiral into social, economic, environmental and political dysfunction and unsustainability.

turn, instead, to the solace and simple certainty offered by various forms of fundamentalism. Inequality and poverty arising from the way that globalisation has occurred is widely acknowledged to be an underlying cause of violence and the rise of fundamentalist inspired terrorism. The retreat from reason and enlightment values that accompanies the adoption of various fundamentalist doctrines is also a key factor that undermines the ability of a society to respond in a rational and cooperative way to a range of threats to sustainability - whether the threat is perceived in social, political or environmental terms, and whether the society is a small fishing community or the global human population. These are not new concepts. Indeed, they relate to long established and central themes of Western political philosophy. In the post 2001 world these issues are re-emerging as urgent and pivotal concerns in global affairs. In the three case study chapters the relevance of these broader themes to fisheries management issues in Newfoundland, Tasmania and Pakistan was explored.

6.2 Chapter 3: Newfoundland - Analysing Sustainability Failure

Chapter 3 dealt with Newfoundland where the collapse of the cod fisheries in the early 1990s provided a defining case study of fisheries management failure. Analysis of the causes and processes involved in the collapse provided some important insights into how a modern, democratic society, supposedly guided by a rational, scientific approach to resource management, could fail to live sustainably within the means provided by a rich resource base. The underlying causes of the crisis were found to be deeply rooted in cultural and structural characteristics of Newfoundland's institutions and its people, and the analysis explored how social division, resource conflict and exploitation in Newfoundland have been produced and reproduced as a consequence of interlinked factors of Newfoundland's history[135], geography, and the political economy of the cod fishery.

European expansion into the Newfoundland fisheries five centuries ago played an important part in the early development and globalisation of the modern capitalist economy. From that time onwards economic specialisation and import-export dependence have been characteristic of Newfoundland and its fish-based economy[136]. A combination of factors have contributed to this including the richness of fishery resources, limitations on agriculture and other economic prospects due to climate and geology, and political and economic restrictions that have influenced the regulation of the fishery and the international trade of its

[135] This historical overview also provided some points of comparison with the European settlement of Tasmania discussed in chapter 4.

[136] Specialisation and dependence are generally defining characteristics of traditional colonial relationships and also of the modern globalisation trend.

inputs and products. Import-export dependence has favoured the maintenance of exploitative political and economic relationships and fostered social stratification and disunity, and these conditions have been implicated, recurrently, in Newfoundland's social and economic problems (see, for example, Innis 1954: 1).

The theme of exploitation is well entrenched in Newfoundland folklore. From the sixteenth to the eighteenth century (the age of the European migrant fishery) it was the English merchants who, with the aid of colonial and maritime laws that were shaped to serve their interests, benefited most from the exploitation of the fishery and those who worked in it. By the nineteenth century, with the expansion of settlement and the establishment of representative government, power had shifted to the saltfish merchants resident in St John's, and they were to reign as the villains of the exploitation stories until the 1930s. The 1930s-1950s period was a tumultuous time for Newfoundland. It saw economic collapse, the suspension of representative government, World War II and confederation with Canada. During this period the fishery began to be transformed as the traditional saltfish trade, with its small-scale, labour intensive methods, declined, and in its place arose an industrialised, frozen-fish industry based on capital-intensive processing plants and offshore trawlers. The modern era in the Newfoundland fishery was shaped by an industrial vision promoted by a partnership between a small number of frozen-fish corporations and the provincial and federal governments (Wright 1997; 2001). The incompatibility of this industrial fishery model with the traditional lifestyle and perceived interests of Newfoundland's coastal populations was a constant source of conflict and division, and this, together with increasing capacity, generated expansionary pressures on the fishery. Prior to extended jurisdiction in 1977 foreign trawlers received much of the blame for overfishing, but in the years leading to the 1990s crisis, it was increasingly the domestic frozen fish corporations, the provincial government, and especially the Canadian government and its managing agency, the Department of Fisheries and Oceans, that were regarded as the exploiters (and despoilers) of Newfoundland's fishery resources and fishery dependent communities.

Chapter 3 argued that recurring crises in Newfoundland and the cod fishery from the mid 1800s onwards can be attributed to persistent, dysfunctional, structural characteristics linked to dualism and disunity in Newfoundland's social and political framework and this theme is developed through analysis of the work of Cadigan (1999a; 1999b; 2001), Cadigan and Hutchings (2001), Wright (1997; 2001), Blackwood (1996), Alexander (1977), Brox (1972), Sinclair (1985) and Finlayson (1994). Cadigan and Hutchings examined the fishery in the 1800s and found that similar social, political, economic and resource related issues were involved in the fisheries crises of both the nineteenth and twentieth centuries. In the mid

1800s there were already indications that fishing pressure was depressing inshore stocks and encouraging technological and territorial expansion. This was generating conflict between those fishers who adopted more powerful, capital intensive technologies (cod traps, jiggers and long-lines) and those whose limited means restricted them to traditional methods (hand lines). Cadigan and Hutchings examined how Government policy, supported by the authority of the science of the day, downplayed concern about resource sustainability and favoured expansionary interests.

Dependence on global trade, combined with exploitative relationships in the fishery, were significant factors in Newfoundland's economic and political collapse during the depression of the 1930s. Beginning with the Commission of Government and continuing after Confederation, government policies from the 1930s to 1960s favoured expansion of a centralised, industrial frozen-fish industry while neglecting the development of traditional outport fishing communities (Alexander 1977; Wright 1997; 2001). This approach entrenched dualism in the Newfoundland fishery (Brox 1972). The roots of the industrial overcapacity and economic dependency that featured strongly as causes of the 1990s crisis are, Wright suggests, to be found in the policies of this period. Government policies that favoured the frozen-fish corporations while neglecting the inshore fishery were linked to a "lopsided distribution of economic and political power" and were implicated in the decline of saltfish production and trade in spite of rising demand for quality saltfish in global markets (Alexander 1977: 37). Traditional saltfish production was linked to the inshore fishery and was a labour intensive, highly value-added use of the Newfoundland cod resource.

At the end of the 1960s Brox (1972) argued that Newfoundland's social and economic stagnation, particularly in the coastal communities, could be linked to a political environment that was the legacy of a long established culture of exploitation, patronage and social division. He found that dualism was being maintained by government policies that served the interests of the frozen fish corporations at the expense of the inshore fishers and he identified a number of policy related mechanisms, including the unemployment insurance system and various economic "conversion barriers", that contributed to this. Brox observed that the inshore fishers were politically ineffective in advancing their interests against those of the corporations, for example, in relation to raising the price paid for fish, and they received little support from the provincial government or the fishermen's union. Conflict was instead diverted towards pressuring the federal government for more subsidies, which tended to reinforce dualism and at the same time generated expansionary pressures on the fishery (Brox 1972: 25-27, 76-88). Dualism, in addition to retarding social and economic

development, entrenched the economic dependence of outport fishers on the very frozen fish corporations with which their interests were, in other ways, fundamentally in conflict. Brox maintained that the pathologies of the Newfoundland fishery were the result of policies and that these could be changed, but he pointed out that the key to understanding the existing situation was to be found by considering who benefited from it[137], and this related to the underlying distribution of power in Newfoundland society. Suggesting that a different approach was technically and theoretically possible, Brox compared conditions in Newfoundland with those in Iceland and Norway where fisheries development had been more inclusive of the interests of the coastal populations, and more successful in social and economic terms, and, as it later proved, in terms of ecological sustainability.

In the 1980s the Newfoundland fishery was characterised by inequality, division and strife (Sinclair 1985). There remained deep division and conflict between the interests of the inshore fishers and the corporations. Government policies were ambiguous and contradictory as they sought to promote economic rationalisation of the fishery on the one hand, while at the same time being unable to entirely ignore the adverse socio-economic consequences for coastal communities that rationalisation implied (Sinclair 1985: 106-116). The introduction of limited entry policies from the 1960s and 1970s denied many fishers access to profitable fisheries, blocking social mobility, creating local elites and entrenching inequality by "administrative fiat" (Sinclair 1985: 114). There was a "culture of limited expectations" among fishers that hindered their ability to take individual or cooperative action to improve their circumstances (Sinclair 1985: 31). They continued to be dependent on the corporations to buy their fish, but the imbalance of power meant that the companies could keep down the price and treat the fishers disparagingly (Sinclair 1985: 139-140). In the early 1980s the fishery was economically inefficient and wastefully destructive of fish stocks. Division and conflict, combined with contradictory policies, was symptomatic of social and political dysfunction. Interestingly, neither Brox (1972), Alexander (1977), nor Sinclair (1985), focused as they were on socio-economic matters, indicated concern about the sustainability of the resource at the time of their studies.

Leading up to the 1990s crisis, the allocation of an excessively high total allowable catch favoured the offshore sector while allowing a pretence to be maintained that the policies were serving the priority interests of the inshore fishery (Blackwood 1996). The technologically powerful offshore trawlers with sophisticated electronic fish-finding equipment could continue to catch fish even when stocks were depressed to low levels, but

[137] Primarily the frozen fish corporations.

the catch of inshore fishers, who were largely restricted to passive gears, declined irrespective of any quota that was nominally allocated to them. The declining catches in the inshore sector more accurately reflected the status of the stocks than catch per unit effort data from the trawlers, which was distorted by technological advances. Blackwood (1996) explicitly linked overfishing to the politics of resource allocation and to the persistent, underlying conflict between the interests of the inshore (small-scale) and offshore (industrial) sectors.

An examination of the internal functioning of the DFO in the lead up to the crisis demonstrated how political interests that favoured the corporate offshore sector influenced the DFO's operations, corrupting its scientific processes and rendering the agency dysfunctional in terms of its mandated task - to ensure the sustainability of the fishery (Finlayson 1994). Hutchings, Walters and Haedrich (1997) reinforced Finlayson's views, finding that government control of fishery science allowed political and bureaucratic influences to distort the production of scientific knowledge, and that this was a major contributing factor in the collapse. Furthermore, they showed that in the years following the collapse, these same influences hampered the effort to develop an understanding of its causes. The argument that the collapse was due to environmental effects (the "cold water" theories) rather than to overfishing was promoted, independent work that did not support the government's "official position" was denounced, while the work of government scientists was interfered with, their conclusions were misrepresented and they were disciplined and prevented from communicating research results that did not support the "official position".

The complexity of the multiple, interacting factors involved in the collapse provided ample latitude for varied and contradictory explanations to be produced. Among other things, these provide insight into how interests influence the generation of cognitive perspectives and attitudes. For example, it clearly was in the interests of government resource managers and their agency, the DFO, to promote the belief that the collapse was due to factors other than fishery mismanagement and overfishing, and several "cold water" theories linking the collapse to anomalous environmental conditions were supported. Despite this, by the mid 1990s it was clear that the primary cause of the collapse was overfishing. But there remained contention over who and/or what was to blame for this.

The inshore fishers blamed technology and management. During the 1980s, as their catches declined, they had complained that the offshore trawlers and middle distance draggers were overfishing the stocks. They also blamed the DFO for setting an unsustainably high total allowable catch, which largely benefited the trawler fleet. The failure of the DFO to

adequately cut the TAC when the crisis began to intensify around 1990 meant that when stock collapse became obvious in 1992, it could fairly be attributed to a combination of the failure of fisheries science and of political will. But these factors were symptoms of the underlying problem of overcapacity, and overcapacity could be interpreted in different ways. These differences emphasised different perspectives in the social versus economic fishery divide. Adherents to the economic fishery paradigm, for example, considered that the problem was caused by too many people being dependent on the fishery, in both the harvesting and processing sectors (for example, Burke and Brander [1995]; Schrank [1995]). They linked the failure of political will to populist concerns about maintaining employment, when, due to advances in technology, less labour was needed to maintain productivity. They argued in favour of further rationalisation. Burke and Brander, in particular, advanced a pronounced neoliberal position arguing that a range of subsidies in the fishing sector should be scrapped, and the problematic "common property" nature of the fishery should be addressed by a management system featuring individual quota.

Researchers such as Charles (1995), Matthews (1995b), Taylor (1995), Underwood (1995) and Maguire, Neis and Sinclair (1995) provided a more systemic and comprehensive analysis grounded in the social fishery paradigm. The quota system that had been the basis of management of the Northern cod fishery received strong criticism. Its structures provided incentives for anti-conservationist behaviour such as illegal gear, excess effort, dumping, high-grading, miss-reporting and trans-shipments and the whole economic philosophy upon which it was based encouraged a sense of self-interest, division and antagonism (Charles 1995: 78-79; Underwood 1995: 37). Charles was also critical of a management approach that largely ignored the interests of the resource owners – the Canadian public – instead serving a narrow group of fishing industry clients. Charles (1995), Matthews (1995b), Taylor (1995) and Maguire, Neis and Sinclair (1995) note that the particular economic focus that drove fisheries policy was a significant cause of the crisis. The focus (of the economic fisheries paradigm) was socially constructed and served particular interest groups, but it promoted a range of dysfunctional attitudes. Among these (discussed by Charles [1995]), was the belief that the system of fisheries management (based on scientific stock assessment, quota and industrial fishing) works. Charles questioned this basic assumption and is supported by Matthews (1995b: 49) who argues that the values of the social fishery paradigm were closer to the requirements of sustainability than those of the ascendant economic fishery model. This analysis, combined with an understanding of the political and economic mechanisms of patronage and dualism, both historic and current, in Newfoundland's fisheries and society, and informed by comparisons with Norway and Iceland, supports an argument that the 1990s crisis in the Newfoundland fishery was caused

by a combination of interlinked and self-reinforcing factors. Many of these could be attributed to groups with a particular agenda or set of interests and the blame variously sourced to greed, too many people dependent on the fishery, too efficient and too powerful technology, inadequate science, inadequate politicians, Newfoundland's lack of political independence, or to other causes. But the systemic analysis that incorporated all of these supported the conclusion that Newfoundland's sustainability crisis was strongly linked to persistent structural characteristics of social division and disunity associated with inequality or dualism in the Newfoundland fishery and in Newfoundland society more generally,

6.3 Chapter 4: Resource Management in Tasmania

Chapter 4, the Tasmanian case study, further explored the themes of inequality and sustainability in marine resource management in a situation that lends itself to some comparison with Newfoundland. The chapter was divided into three sections. The first section described Tasmania and its history since European settlement, highlighting a number of points of comparison with Newfoundland. The populations of both places, for example, are similar in size and ethnic origin[138] and Newfoundland and Tasmania also share other cultural, political and geographical attributes that make them suitable subjects for comparative study. The economies of both places are significantly dependent on renewable and non-renewable resource-extraction industries and both are large islands[139], adjacent to continental landmasses with which they share a degree of political union. Tasmania, a state within the Australian Federation, and Newfoundland, (with Labrador) a province within the Canadian Federation, also share jurisdictional similarities due to matters of geography and the common legacy of a British colonial system of government.

Social dualism, identified as a key underlying factor that contributed to systemic dysfunction in Newfoundland, was also, from settlement onwards, a feature of Tasmanian society. The roots of social dualism in Newfoundland were linked to matters of geography, politics and resource economics, but in Tasmania they lie with the island's settlement as a convict colony. European settlement of Van Diemen's Land (as Tasmania was initially named) at the beginning of the 1800s established a profoundly stratified society. At the top of the social order were free settlers of means who were given substantial land grants (in proportion to the amount of capital they already possessed) and were assigned convicts to provide what

[138] Tasmania and Newfoundland were both largely settled from the beginning of the nineteenth century by people from England and Ireland, although Newfoundland had, on a smaller scale, resident and transitory shore-based European populations from around 1500.

[139] Tasmania and Newfoundland are both generally conceived of as single large islands although, jurisdictionally, both include smaller islands and outcrops.

was essentially a slave labour force. At the bottom of society were convict labourers, and there were also several social strata between the extremes. The early colonial administration was preoccupied with maintaining an unequal, stratified society and it regulated access to land and other resources as a principal means of doing so. Institutions were put in place and a resource management culture evolved that, rather than promoting an egalitarian ethic, instead tended to serve established interests and protect privilege and monopoly.

A number of writers have commented on the persistence of the convict legacy in Tasmanian society into the twentieth century. Shame connected with the convict past was the cause of a deep-seated sense of social anxiety in Tasmanian society (Reynolds 1969) and was associated with a priggish adherence to notions of middle class respectability (Hay 2000). This insecure society lacked the confidence to engage with "unrespectable" democratic and egalitarian political views and a political culture persisted that was based on paternalism, patronage and vested interest (Hay 1992; 2000), and this was reflected in resource management practices in Tasmania (Hay 1977; 1992; Young 1995; Phillips, Kriwoken and Hay 2002). Gibson (1958), for example, described how monopoly over various economic resources, including shipping, timber, banking and the news media, protected privilege and power in the post World War II period, whilst Hay (1977) examined the lack of civic commitment in Tasmanian public life and explained how practices that would be considered flagrant corruption in other places were, in Tasmania, considered the norm and he noted, further, that Tasmania's democratic institutions did not serve, effectively, to censure them.

The argument that cronyism and corruption persist in the culture of business, politics and resource management in Tasmania is supported by a critique of Tasmania's billion dollar forestry industry; an industry that is in some ways comparable to fisheries in Newfoundland. Forestry is the most contentious political issue in Tasmania. In 2004 the industry was the subject of both a Federal Senate Inquiry and of an investigative television documentary aired nationally by the Australian Broadcasting Corporation (ABC). The ABC Report described an industry dominated by a single private company, Gunns Limited, and explored the close relationship between Gunns executives and state politicians and it argued that Tasmania's forests were being managed to serve the interests of Gunns shareholders rather than those of the Tasmanian public (the nominal owners). The report was particularly critical of Forestry Tasmania, the state government's forest management agency. Forestry Tasmania's arrangements with companies such as Gunns are protected from public scrutiny. They are exempt by an Act of Parliament[140] from Tasmania's freedom of information laws, a

[140] Justified on the grounds that such information is "commercial in confidence".

situation, the report noted (Fullerton 2004: 9), that "in the context of the political environment in Tasmania" provides a "recipe for cronyism and a recipe for corruption". In Tasmania, it is claimed, people are afraid to speak out about forestry issues because of likely consequences for their careers and there is, it is claimed, a pervasive culture of fear and intimidation in Tasmanian public life that stifles dissent (Flanagan 2004a: 7; Fullerton 2004:1).

The discussion of forestry in Tasmania provided a supporting context for the case of a political and resource management culture in Tasmania that tends to serve vested interests rather than the public good. Further, the evident lack of adherence to the norms of propriety and democratic accountability were linked, albeit loosely, to a cultural legacy of Tasmania's convict past. This provided background for the following two sections of the chapter that dealt with the management of marine resources in Tasmania.

The first of the marine issues discussed the history and evolving management and regulation of Tasmania's rock lobster fishery, culminating in the current system based on ITQ. The examination was framed within the context of the general debate over fisheries management issues as discussed in chapters 2 and 3, and the background on the culture of resource management in Tasmania discussed above. It was also informed by Olson's theories (1982) about the tendency, in any society, for rent-seeking coalitions to proliferate, accumulate rights and privileges, and entrench social stratification, thereby producing a society in which predatory economic activities predominate over productive ones, leading to poor over-all economic performance and a poorly developed civic capacity. Olson's ideas relate closely to the "Dutch disease" concept that explains why resource rich countries, where opportunity encourages predatory rent-seeking (and corruption) rather than productive activities, tend to be poorer than resource poor countries.

The study of Tasmania's rock lobster fishery and the introduction of the ITQ system in 1997/8, described how a public resource was converted to private property as vested interests combined with a resource management culture that, lacking an egalitarian ethic, was oriented towards the neoliberal values embodied in the economic fishery paradigm. The fishery was principally regulated from the 1880s by a size limit, which consistently provided an effective conservation measure. From this time until the 1930s the most contentious issue in the fishery concerned the introduction of baited pots (or traps). These were originally prohibited, but were progressively introduced between 1905 and 1940 amidst a controversy that pitted small-scale users of traditional methods against those wishing to use the more powerful and capital-intensive pots and the larger vessels that were required to fish them.

Following World War II pots rapidly superseded rings and technological innovation in motors, echo sounders, refrigeration and transport greatly increased the efficiency of the fleet. From the 1960s the fishery experienced a number of regulatory transitions, taking it from a situation of open (though qualified[141]) access to the current limited entry quota management system based on ITQ.

A significant consequence of the QMS has been the bureaucratisation and "refeudalisation" of the fishery. There has been an escalation in the value of access entitlements, with quota units that were the equivalent of a full 40-pot licence before the system was introduced achieving a market value in excess of AU$ 1 million by 2002. There has also been a trend towards investor control and foreign ownership of quota, and the high cost of entry now imposes a barrier to social mobility in the fishery. The traditional progression from deck hand to owner-operator has effectively been blocked. There has been an increase in rent-seeking activity as quota owners, government bureaucrats, academic researchers, consultants, lawyers and foreign governments[142] collaborate and compete over approximately AU$ 20 million in resource rent produced annually from the fishery. The transition to the QMS facilitated the distribution of resource wealth away from Tasmania's coastal populations to the benefit of global investment capital, and while it made existing licence holders wealthy it entrenched inequality in the fishery. The analysis noted a distinct lack of disinterested opposition to the introduction of the QMS in Tasmania[143], in contrast to the widespread reaction against resource privatisation in countries such as Iceland, Norway, France, the USA and other places as discussed in chapter 2, and concluded that this was indicative of a poverty of civic commitment and the lack of an egalitarian ethic in the culture of resource management in Tasmania.

The question of resource conservation and sustainability was also considered. In Newfoundland reliance on a system of management based on quota was singled out as a major cause of the collapse of the Northern cod fishery, but there is no suggestion that the ITQ system will lead directly to overfishing in the Tasmanian rock lobster fishery. Under

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[141] In the 1960s, as discussed in chapter 4, the number of licences was not limited and they were available at nominal cost to qualified skippers who had a vessel of sufficient size. The pot allowance, between 15 and 40 pots, related to the vessel size and therefore to capital.

[142] Much of the Tasmanian catch goes to China where, as noted in chapter 4, an import tax secures a portion of the rent for the Chinese government. Management and policing costs for the fishery increased following introduction of the QMS to approximately AU$ 3.4 million. Approximately 55% of this cost is recovered from the industry, the rest falls on the Tasmanian public purse (Williamson 2002: 205).

[143] There was strong opposition from some industry sectors who perceived that their interests would be affected by the system and the method initially proposed for the allocation of quota.

current socio-economic conditions in Tasmania, the fishery can be effectively protected from poaching and overfishing. But the general criticism of regulation of the fishery, and, in particular, the way that it has entrenched inequality in the fishery and more widely in Tasmanian society, has broader implications. By entrenching inequality, the management of the fishery has failed to contribute to fostering the sense of cohesion and common interest that, according to the sustainable communities concept, underpins the necessary cultural and structural foundations of social and environmental sustainability. How this could, in theory, impact on the sustainability of the fishery by influencing the regulation of pollution in Tasmania's coastal waters was then considered.

Sea-cage salmon farming was introduced to Tasmania in the 1980s and has expanded to become a significant, multi-million dollar industry. Salmon farming takes place in sheltered coastal waters, particularly in the Huon Estuary and the D'Entrecasteaux Channel, which also have a range of scenic and environmental values, and the industry has encountered strong opposition (as it has in other parts of the world) due to its environmental effects. The nutrients discharged by salmon farms are of particular concern in the region and contribute to occasional noxious algal blooms and other symptoms of eutrophication.

Two different approaches to regulating salmon farm pollution were discussed. The first of these was a scientific approach, which attempts to model all of the factors influencing nutrient dynamics in a waterway and, thereby, determine a carrying capacity for nutrient discharge from salmon farming based on some "scientifically" established level of acceptable environmental impact. An alternative approach was also examined. This took a political and economic orientation, in which nutrient discharge from salmon farming was compared and related to the pollution produced from other sources so that relative economic benefits versus costs of amelioration could serve as a mechanism to guide resource decision-making. These two approaches informed the analysis of an integrated land and marine planning project, discussed in chapter 4, in which pollution from salmon farming became a contentious issue.

The study examined the way that agencies charged with industry regulation and environmental protection ignored the pollution produced by salmon farms as the Tasmanian government sought to facilitate industry expansion. Regulating agencies collaborated with the salmon farming industry to suppress public information on salmon farm pollution in a manner that tended to restrict democratic participation in resource decision-making processes. The study exposed contradictions and dysfunction in Tasmania's system of environmental management and provided another example of how, within the Tasmanian

resource management climate, private interests predominated over the broader public interest associated with environmental protection. This raised concerns about the prospects of protecting from pollution, Tasmania's coastal waterways upon which the sustainability of various fisheries, along with a range of other values, depends.

A link was made, drawing together key concepts from the three sections of the chapter. It suggested how the regulation of the rock lobster fishery (portrayed as the perpetuation of a legacy of historically established dualism in Tasmanian society) in producing inequality and other structural characteristics not conducive to sustainable communities, contributed to the maintenance of a resource management culture in Tasmania that, in proving dysfunctional in the face of potentially damaging sources of marine pollution could, at least at a theoretical level, indirectly threaten the sustainability of the fishery. In chapter 5 the validity of this theoretical connection was demonstrated in a resource management case study from Pakistan.

6.4 Chapter 5: Pakistan - Key Concepts Illustrated and Reinforced

Chapter 5, the Pakistan case study, reinforced some of the key concepts and conclusions developed with a focus on fisheries in the preceding chapters. The discussion was then expanded to emphasise the relevance and interrelationship of these issues of fishery resource and societal sustainability to broader social and political matters of pressing global concern.

The chapter was divided into three sections. The first provided background and context. It described Pakistan as a society in a perpetual state of crisis. Entrenched social inequality and institutional dysfunction, characteristics that were linked to unsustainability in Newfoundland and Tasmania, are greatly magnified in Pakistan and their effects are more clearly evident. Pakistan can be considered advanced in terms of Olson's theories (as discussed above in relation to Tasmania) and indeed his studies of the Indian subcontinent provided key insights in their development. The Indus River Valley, which is the central geographic feature of Pakistan, was the site of one of the earliest civilisations based on irrigated agriculture, and in some places agricultural practices seem little changed after 4,000 years. Control over land and water remains fundamental to political power in Pakistan today, where the proliferation and entrenchment of rent-seeking activities has shaped the country's social, political and economic structures. As Olson's theories explain, Pakistan is, as a consequence, a country beset by productivity-sapping conflicts over resources; by entrenched social divisions based on factors such as class, caste, and ethnic difference; by widespread poverty and inequality; by a poorly developed civic culture lacking a sense of the

broader public good; and by corruption and institutional dysfunction. The causes and consequences of these characteristics were examined, particular attention being given to discussions of the entrenchment of feudalism in agriculture, the role of the military as arbiter of the divisions and tensions in Pakistani society, and the rise of fundamentalism in the region.

The second section of the chapter concerned fisheries issues. A brief overview of Pakistan's marine fisheries demonstrated pronounced dualism and other structural features that were similar to those found to have underpinned dysfunction in the Newfoundland fisheries as discussed in chapter 3. An inshore sector comprises about 100,000 small-scale fishers who work coastal waters from small vessels, often powered only by oars or sail. The offshore sector features capital-intensive, technologically modern vessels, and the Pakistan government also licenses foreign vessels to fish in offshore waters. There is a perceived competition for resources between the inshore and offshore sectors and fish stocks are under pressure, being harvested beyond biologically sustainable limits. Government policy favours economic efficiency and modernisation and is, correspondingly, less responsive to the needs of subsistence oriented, small-scale fishers and coastal communities (Siddiqi 1992: 409). Those holding power in Pakistan (frequently the military) exploit the tensions in the fishery and play off the two competing sectors for political (and financial) returns. These conditions in Pakistan's marine fisheries have clear parallels with those discussed in relation to Newfoundland in chapter 3, however, the focus of the section is on Pakistan's inland fisheries which provide insights of particular relevance to the questions raised in chapter 4 about the connections between resource privatisation, inequality, unsustainable communities, and the theoretical threat this poses to the sustainability of fisheries through ineffective management of catchment pollution threats.

Pakistan's inland fisheries occur in lakes, reservoirs, rivers and canals throughout the country and support about 200,000 fish-workers (almost double the number employed in the marine sector). Rawal Lake, a small water storage reservoir near Islamabad, is representative of similar freshwater fisheries throughout the region and the Rawal Lake fishery was studied during a visit to Pakistan in May 2001. Exclusive fishing rights to Rawal Lake are allocated by an auction process for periods of three years. This method of allocation is common throughout Pakistan and is also used to allocate fishing rights for large lake and reservoir fisheries that support thousands of fishers. In Pakistan, with its feudal social structures and barriers to social mobility, it is not the fishers who acquire fishing rights. They work as dependent contract harvesters for those (often consortia of business interests, fish merchants and the politically connected) who are in a position to acquire

monopoly fishing rights to a particular body of water. The Rawal Lake study demonstrated the compatibility and ease of integration of market mechanisms with feudal social structures in these fisheries. At one level the system appears to work. It seems to be quite effective in producing fish protein and generating resource rent from the fisheries under socio-political conditions that are quite challenging. But from a broader, more systemic perspective these fisheries management systems perpetuate inequality, social division and unproductivity as human resources are cheapened and diverted from creative and productive work to rent-seeking and distributional activities. Thus, they serve to entrench the structural characteristics of Pakistani society that are linked to institutional dysfunction, and this can be clearly linked to unsustainability in these fisheries through the failure to protect them from the effects of catchment pollution. For, while Pakistan has a comprehensive legislative framework to provide for environmental protection[144], this is not effectively implemented and the reasons for this are those associated with unsustainable communities as discussed throughout the thesis; i.e. the lack of social cohesion and sense of civic culture that is associated with inequality. Rawal Lake has chronic environmental problems due to poor management of catchment pollution caused by agriculture, industry and human settlements. In 2004 pollution was thought to be the cause of a devastating fish kill which provided a clear demonstration of sustainability failure. Poor management of catchment pollution is a problem across Pakistan and has caused the decline of significant freshwater fisheries with traditions that date back for millennia. Manchhar Lake, Pakistan's largest freshwater lake, is an example of this, where several thousand fishers and their communities were displaced by the fishery's decline. Displaced people, such as these, join the ranks of the millions of unemployed and property-less in Pakistan, and the poverty and despair of people dislocated from access to resources due to environmental degradation, and other causes, is linked to the rise of religious fundamentalism in the region. The causative link between unsustainable fisheries management and the rise of fundamentalism that is established, specifically, in the Pakistan case study, reintegrates the discussion with the general theme, developed in chapter 2, of the rise of fundamentalism of various sorts as a consequence of neoliberal globalisation.

The third section of the chapter examined fundamentalism in greater depth. The authoritarian suppression of individuality, reason, democracy and other humanist and enlightenment values is discussed and the link between fundamentalism and inequality associated with preponderantly rent-seeking political economies is explored. The current rise of various forms of fundamentalism in the West and the corresponding decline in secular, humanist values is also discussed. This has, in recent years, become an important

[144] Similar to that of other countries like Australia.

topic of scholarly research and public debate and is associated with broader discussion on issues of sustainability and the causes of the decline and collapse of civilisations. This debate is clearly relevant to the examination of sustainability and global trends in fisheries, the core theme of the thesis, discussed in general in chapter 2 and in relation to specific case studies in chapters 3, 4 and 5.

6.5 Conclusion

The thesis provides substantial support for the argument that global trends in fisheries towards management systems that emphasise the neoliberal values of resource privatisation, wealth concentration and rent-maximisation as a measure of efficiency, are not compatible with sustainability. It also provides support for a broader argument that the worldwide trend towards the adoption of neoliberal social and economic policies, which reduce social cohesion and contribute to inequality and insecurity, is not compatible with the sustainability requirements of human societies more generally. The study also has obvious relevance for the management of other resources; debate over the global trend towards the privatisation of water stands out as a compelling example. In its broad approach, the study explores themes that in various forms have been matters of recurring concern for all human societies confronting the challenges inherent to resisting entropy, and it develops many ideas that might serve as tangents leading to further useful study, but it does not provide prescriptive solutions, conclusive proofs or simple certainties. As was discussed in the introductory chapter, it is not in the nature of exploratory, qualitative research to do so. What the thesis does is to make a worthwhile contribution to a continuing debate about sustainability that is of central concern to all human societies.

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